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ABSTRACT

In the spirit of the new, sober eclecticism in foreign language teaching methodology, the effectiveness/efficiency dimensions become the criteria for decision-making in educational planning. The points are raised that: (1) there are no universally applicable methods; (2) teachers should not accept educational dogma without empirical evidence; (3) the classroom teacher is in a very good position to conduct research which is meaningful and, in all likelihood, more valid for his situation than that carried out in broad comparisons or artificial lab situations; and (4) the effectiveness-efficiency dimension provides a useful conceptual framework for such action research. The main argument is then applied to representative analyses of the effectiveness/efficiency of some major instructional strategies. (Author)

Evaluating the effectiveness and efficiency of instructional strategies in teaching German

by Manfred Prokop

"The early sixties seem long ago, but I still remember how I used to confiscate from my pre-reading stage students the phonetic equivalents they surrepetitiously wrote in their frantic, well-intentioned efforts to remember their dialog lines. How dutiful I was in patiently explaining that they would learn to speak better if they did not see the written text. How confident I felt that my actions were justified. After all, this was the right way to teach, the most modern way to teach. And, by golly, no mere classroom reality was going to contradict this certainty.

Well, in the intervening decade my six-month pre-reading period has ultimately dwindled to a day or two, and conversely, my scepticism of educational bandwagons has assumed monumental proportions" (Disick, 1973, p. 250).

These words by Renée Disick, co-author of "Modern Language Performance Objectives and Individualization", were written to warn over-eager educators (or those disenchanted with what has been) not to jump on the most recent of educational bandwagons - individualization of instruction. Listen to the promises made - yes; but before "individualizing our instructional situation" by means of learning packets, cassettes, video-tape recorders, study carrels, learning resource centers, movable room dividers - in short, before mobilizing a major effort at redesigning curriculum, let's first analyze what the new approach to teaching and learning a foreign language can offer, what its advantages are

over what we already have, how effective it is in helping students learn to communicate in the foreign language, and how efficiently it uses the available learning and teaching resources in the school. Disick asks us, the foreign language practitioners, not to blindly follow educational dogma, unproven by any standard, in the same way as many teachers clambered onto the pattern practice bandwagon ten years ago.

Grittner (1973) echoes these thoughts when he criticizes what he calls the "accountability bandwagon", on which behavioral specificationists attempt to relate all learning conditions and outcomes and all internalized reactions of individuals to externally observable behaviors in a manner congruent with the practices of educational research. Writing performance objectives is a method suitable and even desirable for some aspects of language instruction, he says, but at more intangible levels the results could be ludicrous. Question: How do you quantify student appreciation in behavioral terms? Tongue-in-cheek answer: Observe children and count smiles.

This new soberness in the critical evaluation of foreign language teaching "methods" and learning resources stems, of course, from a disenchantment with the results of the "New Key" of the Sixties, with the high-sounding, glib promises of students acquiring native-speaker-like pronunciation and fluency, a high structural accuracy, a good understanding of the foreign culture along with its acceptance - and all this with a minimum of cognitive or other effort and on a conceptually vague and-what's worse - on a practically non-existent empirical basis. What research with humans was there in the early sixties to lend empirical

validity to the theorectical claims of the times?

As Heien (1973) put it: "There are two long-standing activities in the foreign language teaching profession that are ineffective ... One is the continued use of the long-range study to test the efficacy of teaching methods; the other is the search for the one best method (p. 185). And Chastain (1970) writes that "the evidence at present lends little support to a continued search for the one way to teach. Teachers, students, and the many components of the language itself are too varied to justify an insistence upon one particular method. The better question would be to ask which approach should be used with which students by which teachers and for which aspects of the language (p. 233).

A new eclecticism in modern language teaching, as Boswell (1972) calls it, appears to be developing where the use of instructional strategies is governed not by blind reliance on educational dogma of whatever sort (the direct method, the audiolingualists, the transformationalists, the humanists, etc.), but is governed rather by the teacher's conscious selection, among several alternatives, of that strategy which works best with a given behavioral objective, a given educational environment, a given group of students, and a given teacher.

Now, how does the teacher know which teaching strategy he or she should employ? The answer is, of course, that he should look to the educational researcher to provide the answers. Unfortunately, research in foreign language teaching and learning has been confounded by the same problem that has plaqued research with humans in other disciplines, viz. how to control for the huge number of variables which could, in addition to the variable

studied, intervene in the transition from learning condition x to learning condition y. Two approaches have traditionally prevailed, viz. the large-scale, real-life experiment and the small-scale, simulated-life, lab-type experiment. The former tries to increase validity and generalizability of results by including large numbers of ostensibly randomly selected students and teachers in the study; the other type hopes to keep non-relevant variables to a minimum by strict experimental control.

The failure of both research approaches to produce meaningful results has been amply described elsewhere: the broad comparisons of "methods" are always too vaguely defined in the methodology used as well as are lacking in rigorous experimental design, and more often than not lead to the conclusion "no significant differences". Over long periods of time one simply cannot control the method which the student is using outside the class, and therefore one cannot be sure that learning is the result of the classroom method. Furthermore, it is difficult to create distinct materials and maintain truly different presentations over an extended period because methods have many elements in common.

The results generated by lab-type experiments (for example, on learning paired associates) lack sufficient similarity to real-life teaching and learning conditions to allow ready transferability to be useful to the teacher.

Among the broad comparisons (e.g. Mueller 1962; Valdman, 1964; the Philadelphia Project, 1968; Chastain & Woerdehoff, 1968), the Scherer-Wertheimer Project (1964) on teaching German by means of "traditional" versus "audio-lingual" methods is typical in that it points out the common-place observation that "by

and large, students learn (if anything) precisely what they are taught; no mysterious transfer effects across different language skills occur" (Carroll, 1970): those trained in Speaking and Listening did better on these skills than the traditional group, while the latter excelled in Reading and Writing. The authors concluded that the two methods - while yielding occasionally strong and persistent differences in various aspects of proficiency in German, resulted in comparable overall efficiency (Carroll, 1970, p. 30). Or: What should one think of an experiment which concluded that the Cognitive Code Learning course was significantly superior to the Audio-Lingual Course in Listening, Reading and Writing when Speaking wasn't even tested for and when strategies of instruction identified as characteristic of one of the two approaches were used by either? (Mueller, 1971)

However, it would be a grave mistake to conclude that - because traditional experimental methods in psychology have failed - that therefore the teacher has no other recourse but to revert to impressionistic, opinion-based action, as Jakobovits (1970) puts it. The future of effective foreign language teaching, in his opinion, does not rest with developments in linguistics and psychology, but rather with the teacher's increased know-how to expose the student to the set of conditions of learning that are just right for him.

Heien's (1973) suggestion on how to develop this practical knowledge differs from the traditional approaches: he recommends teacher-conducted, small-scale, controlled classroom experiments, so-called "action research". The concern of such research should be

to determine the best ways of teaching specific elements of the foreign language; it would test the effectiveness of specific features of a method rather than its global effectiveness. But teachers may also be concerned about efficiency: it is likely, says Heien, that certain grammar items, for example, might be taught effectively by habit formation, but it would be inefficient to do so. Thus, experiments could be devised to test the hypothesis that in a specific instance an audio-lingual approach is as effective as a cognitive method, but not as efficient. Must some things be taught at a cognitive level? As habit? Are there areas of language systems that might be taught either way? If so, which way is more efficient? In these experiments it would be imperative to set specific performance objectives, on the basis of which expected achievement could be accurately related to observed achievement (Heien, 1973, pp. 88-89).

With this new eclecticism in mind, let me pick up Heien's cue about evaluating the effectiveness and efficiency of specific instructional strategies. I would like to discuss some of these terms first.

I prefer the name strategy to "method" as the latter includes a large variety of instructional activities, most of which tend to remain undefined and unobserved; a "method" is too broad a concept, and as reported earlier, no useful insights have been obtained from broad methodological comparisons. The name "method" also carries the connotation of recent educational-ideological warfare, which is exactly opposite to the purposes of functional analysis.

An instructional strategy will be defined as a cluster of

activities (such as questioning, answering, repeating, explaining, expanding, contracting, reinforcing, etc.) in three sense modalities (viz. the acoustic: aural-oral; the visual: pictorial-graphemic; and the kinesthetic). A strategy considers teacher variables (such as professional background, attitudes, and motivation) student variables (cognitive, emotional, and psycho-motor characteristics) and learning environment variables (such as resource materials and educational machinery). Strategies are oriented towards reaching a set performance objective, and are evaluated as being effective in these terms. Strategies which resemble one another in emphasis can be grouped together as methods (e.g. Direct Method, the Natural Method, the Grammar-Translation Method, the Unit Method, the Mimicry-Memorization Method, the Audio-Lingual Method).

Examples of strategies are: the pattern drill (consisting of the activities: presenting/listening - repeating - correcting/confirming - repeating - correcting/confirming); situational practice drill; eliciting responses by pictorial cues; teaching and learning vocabulary in semantic or situational context; cognitive explanation of a structural principle before, with and/or after an exercise, or not at all; presenting the written symbol before, with and/or after teaching its sound equivalent; role playing in situations involving attitudes towards the foreign culture; comparative analysis of style by translation; teaching spelling through the use of cognates and an understanding of the processes word formation in the foreign language.

The effectiveness of an instructional strategy, in general terms, is a measure of the amount of learning achieved by it; it is (1) a function of the extent to which it utilizes the teacher's

ability to organize the learning environment; (2) a function of the extent to which it meets the needs of students and exploits their special talents and previous knowledge; and (3) a function of the extent to which it makes use of materials available in the learning environment. More specifically, effectiveness can be measured as the ratio of learning actually observed over the amount of learning optimally expected over a given unit of time, given certain characteristics of students, the teacher and the learning environment. Effectiveness may be studied as a composite for all students in a class, or analyses may be run for differential achievement rates of groups of students. Take a hypothetical example:

In a highschool classroom with the characteristics a,b,c,d ... the use of transposed word order in German was practised in a pattern drill consisting of a three-sentence demonstration-listen phase, a six-sentence repetition phase and an eight-sentence transformation phase; this learning condition resulted in a 75% overall mark on an achievement test in a sequence of directed statements, which were recorded immediately after learning. At the end of the period (35 minutes later), a re-test yielded a composite of 64%. At this point, the teacher had to ask himself whether the use of strategy A as outlined fulfilled his performance expectations for the group as a whole; if not, what could be done to increase students' learning? In an analysis of scores, he found three discrete groups at the first test; their average marks were 95% (N=4), 75% (N=15), and 60% (N=5), respectively. At the end of the period, the first group had scored 98%, the second 67%, and the third had dropped to 29%. In conversations with the stu-

dents the teacher found that scores had declined with the degree of understanding of both the grammatical principle as well as of the instructions on what students were supposed to do in the exercise. In the next period, the teacher added two components to the basic strategy A: he explained carefully what the students were supposed to do in the exercise and explained the principle of transposed word order. Test results for the three groups, at the first testing point, were 97%, 82% and 74%, at the second point 95%, 75%, and 64%; the composite scores were 83% versus 76% at the re-test. An application of the same strategy B with material which had not previously been taught yielded a comparable pattern.

It is clear that the overall as well as the particularized effectiveness of instructional strategy A was increased substantially in that classroom. Now, what was the efficiency of Strategy A versus that of Strategy B? What was the relationship between effectiveness and efficiency?

In general terms again, the efficiency of an instructional strategy is the inverse function of the "cost" of implementing it in order to reach a set effectiveness level. Increasing the effectiveness of a strategy by modifying it is likely to decrease its efficiency; conversely, increasing the efficiency is likely to decrease its effectiveness - although this is not necessarily so, as will be shown later. In any case, the relationship between instructional effectiveness and its associated efficiency is of utmost concern to the teacher as he operates within the constraints of a real-school situation where a minimum level of efficiency of the classroom operation - regardless of its effectiveness -

must be maintained.

Specifically, the "cost" of implementing an instructional strategy is the sum total of the money equivalents of time and effort being put in by students, teachers, and other associated personnel as well as the real costs of learning resources and technological aids. Efficiency is a function of the cost of teacher qualifications, of the time required for preparation, teaching and correction of learning material; it subsumes the cost of student time while they are preparing to learn, while learning, while evaluating learning; it also includes the cost of the educational environment, the purchase, maintenance, amortization costs of equipment, and the costs of running the equipment. Clearly, determining the efficiency of an instructional strategy is a complex business, and it would be extremely difficult - if not meaningfully impossible - to devise the mathematical machinery to compare efficiency ratios in different schools with different teachers, students, and equipment. Here then resides one of the advantages of teacher-conducted classroom research: any two strategies will have a common baseline in terms of in-school expenditures; the teacher only needs to look at actual costs involved in implementing the strategy in the classroom when compared to using another strategy. In the above example, the two instructional strategies involving the learning of transposed word order differed in efficiency as follows: probably half a minute's worth of explanation of instructions and possibly two minutes worth of explanation of the grammatical principle - a not unreasonable decrease in efficiency, however calculated in real money terms, for a dramatic rise in instructional effectiveness (Incidentally, a similar actual experiment is de-

scribed by Peter Rosenbaum in "The Computer as a Learning Environment for Foreign Language Instruction" in FLA, 2 (4), 1969, pp. 457-465).

Let me return to effectiveness for a minute. The effectiveness of a strategy can be measured along two dimensions, viz. achievement over a time span following learning (that means, amount of material not forgotten) and divergence of application of learned material (that means, "transfer" to different situations). Strategies may differ in terms of their effectiveness immediately following the learning step, 1 hour subsequently to it, 1 day, 1 month, etc. Effectiveness may also differ according to the extent to which learning can be applied in a tightly structured situation (where only one correct response is possible) as compared to achievement in a controlled response situation (where several correct choices are possible) and finally to a free-expression situation (in which the learner must call up and use properly the element learned). I would assume that we are interested in long-term, high-divergence learning, but what are the implications of this desire for instructional efficiency? Do we know?

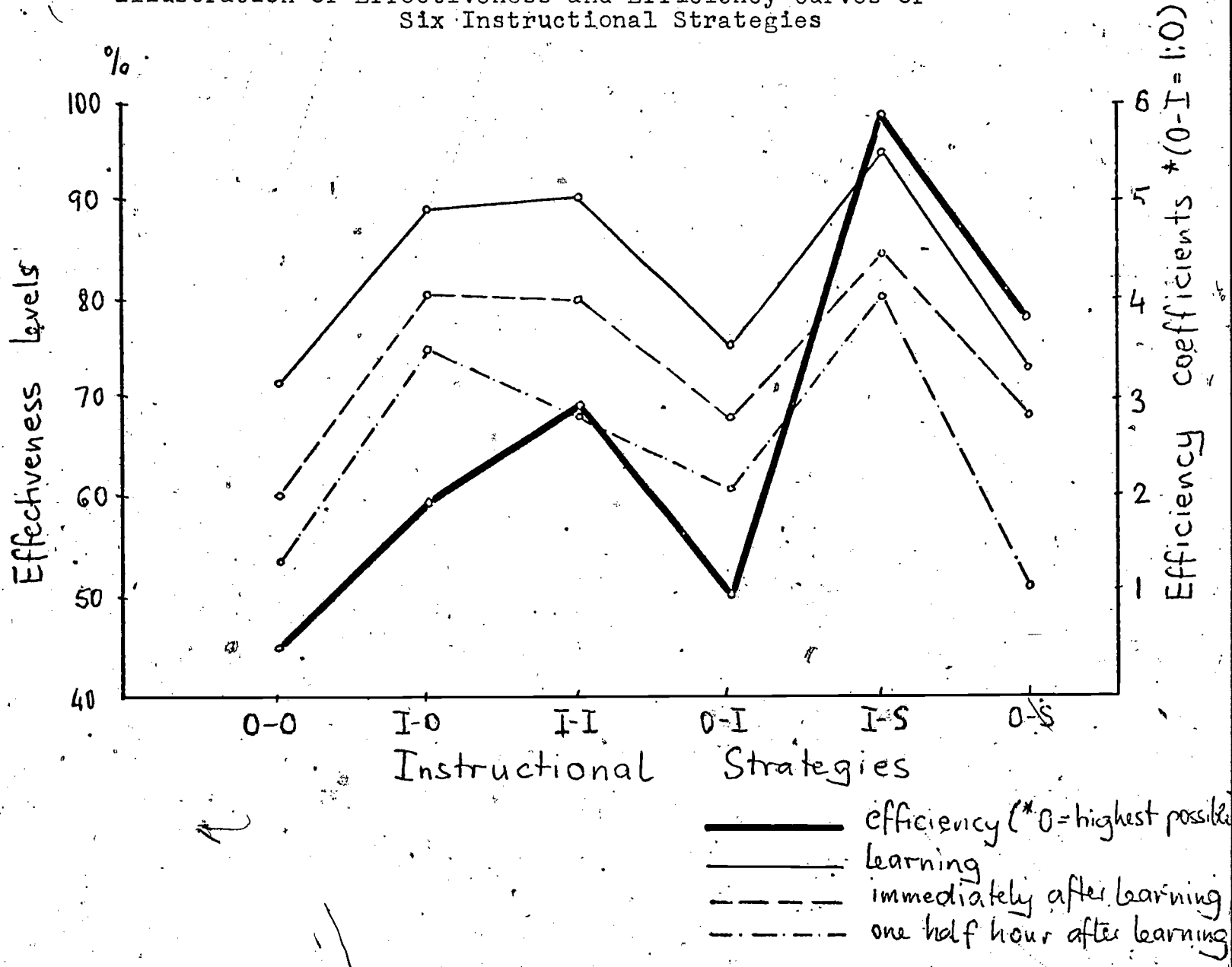
The analysis of effectivenes-efficiency levels of instructional strategies does not necessarily present the obvious answer, but it allows us as teachers to make a conscious, rational decision: it provides the basis for appropriate teacher action. Assume, for example, that strategies X and Y had effectiveness levels of 80% versus 88%, respectively, but Y were only 50% as efficient as A. Does the relatively small return on increased effectiveness by 10% justify an increase in cost by 50%? The result of an effectiveness-efficiency analysis could well be the

selection of the relatively most effective strategy, given certain financially permissible efficiency levels.

As an illustration, take the SUNY Pilot Project on teaching Spanish through team teaching and supervised independent study which was occasioned by financial pressures. Boyd-Bowman et al. (1973) reported that on measures of Listening, Reading, and Writing the classes taught by traditional means (taught 5 times per week by the regular instructor) did not differ significantly from those who were team-taught (twice a week; the rest of the time by native informants) or from those who were supervised in independent study. Clearly, Group 1 was the most expensive, consequently less efficient than Groups 2 or 3. Obviously, a cost-conscious administrator would prefer the approach to teaching involved in Groups 2 and 3. But take a look at achievement levels and ask yourself if any of them would be acceptable in your school: In each of the three groups, the students reached only about 50% of potential maximum achievement in Listening and Reading, and about 65% in Writing. Much could be said about these levels of obtained achievement; in any case, the relationships between efficiency and approach there are clear, and decisions can be taken on that basis if the obtained levels of achievement are acceptable.

Let me give you an illustration of an analysis of effectiveness and efficiency which was carried out in the German Department at the University of Alberta. The problem involved six variants of an instructional strategy concerning the role and place of a cognitive explanation of grammatical principles by the teacher and/or the students before and/or after practice. The learning material was adjective endings in the accusative singular of the

Illustration of Effectiveness and Efficiency Curves of Six Instructional Strategies



Constants: Materials, equipment, exercise time

Cost equivalents of time in half-minute blocks: A (student time) = 7 cents/min

B (instructor time) = 18 cents/min

0-0 = ½ A	= 3.5 cents	= .4
I-0 = 1A + 1B	= 25 cents	= 1.9
I-I = 1½A + 1½B	= 37.5 cents	= 2.9
0-I = ½ A + ½ B	= 12.5 cents	= 1.0
I-S = 3A + 3B	= 75 cents	= 5.8
0-S = 2A + 2B	= 50 cents	= 3.8

three genders following der-words and ein-words. The performance objectives for this non-randomized class of 26 students was (1) 100 % on an oral test immediately following the learning situation, which required the proper use of the correct adjective ending in ten sentences supplied by the instructor, involving various combinations of genders and pre-limiters; (2) 100% on an oral test one half hour after the learning situation in which the student was asked to complete a sentence correctly while using an adjective and a noun of his choice. All students went through the six configurations; the taped exercises themselves were the same for all students; the students recorded their responses on tape. Cognitive explanations of the grammatical principle were distributed as follows:

(1) No explanation before the exercise; no explanation subsequent to it; the students were given half a minute before they started the next learning segment; the intention there was to allow the students to think about, fix in their minds, or whatever, structural generalizations derived from the sentences practiced (O-O).

(2) The instructor explained the structural point before the exercise; but no verbalized explanation followed it. (I-O)

(3) The instructor explained the structural point before the exercise and summarized again after the drill. (I-I)

(4) No explanation before the exercise; the instructor summarized the grammatical principle involved after the exercise. (O-I)

(5) The instructor explained before the exercise and called on students to verbalize the grammatical principle contained in that learning segment; where necessary he asked leading

questions to help the students along. (I-S)

(6) No explanation before the exercise; the instructor called on students to verbalize the grammatical principle and helped them along where necessary. (O-S)

The graph on the hand-out shows the results; it is clear that effectiveness and cost did not vary in a straight line with each other. Note that the highest initial learning achievement was obtained under treatment I-S (also the most expensive one), the second highest by I-O which was the third-most expensive treatment. After half an hour (and presumably we are interested in longer-term learning) material learned with I-S was still best remembered, but was followed closely by I-O. Strategy O-S certainly appears to be a strategy to avoid both in terms of low effectiveness as well as relatively low efficiency. Similarly, I-I is less suitable than I-O. If I were the teacher, I would employ I-S (i.e. grammatical explanation before drilling and grammatical summary by students with the help of the teacher) if the extra cost involved when compared to I-O did not make a difference.

A word of caution here: these results confirm what we have suspected, of course, but they may <u>not</u> be generalizable to other points of grammar, other levels of language instruction or other schools. The point of this analysis has, of course, been to aid the classroom teacher dealing with a certain group of students under certain learning conditions. Generalizability of results from large-scale, broad comparisons as well as from lab-type experiments has always been a precarious matter; however, a classroom teacher may reasonably expect his students and learning conditions to resemble each other from year to year, and may, con-

sequently, trust his own action research much more. Just coincidentally, the results of this experiment agree, at least in part, with Politzer's who also studied the role and place of the explanation in the pattern drill. He concluded that an early introduction of the grammatical explanation by the instructor seemed to be a more effective treatment than its postponement or omission (Politzer, 1968).

Let me turn now to an analysis of some common instructional strategies in terms of their reported effectiveness and probable efficiency.

The pattern drill. In 1963, Carroll stated that there was hardly any empirical research that could be cited either to support the use of pattern practice drills as contrasted with other methods of teaching grammar or to indicate what variables control the success of particular types of drills (Carroll, 1963, p. 1072). In 1966, the same author concluded that there had been few recent studies of methods of grammar teaching in foreign languages (Carroll, 1970, p. 32). He cites two experiments, one of which must be evaluated with caution because of obvious handicapping of the Control group; the other one, by McKinnon, will be discussed below.

How many times does a sentence have to be repeated to establish a pattern in the student's mind? Does every student need to repeat the same number of times? It has been suggested (note, not shown) that it may take at least three listen-and-respond pairs to establish a pattern, and eight to teach it (Stack, 1960, p. 34). Are the various types of pattern drills (such as transformation, substitution, contraction, expansion) equally effective in producing short-term and long-term learning? What is the transfer

capability of the various pattern drills to the real-life communication situation? How much over-learning is required, if any? At what point would it be more effective (and efficient) to practice the foreign language within real-life situations rather than to continue to drill in mechanical, controlled exercises? New is even the recognition that exercises can be categorized as ranging from mechanical drills (where only 1 response is correct), to meaningful controlled drills (where the student has a choice among several correct answers), to communicative exercises in which the student has the control over the selection of material (Paulston, 1970)? New is the recognition of the need to shift control from the teacher toward the student while a certain point of the grammar is being learned. Empirical evidence for all these questions is simply non-existent.

What is the role of class size in practicing? Horne (1970) concluded that a class of 4 or less does no better than a group of 5 to 9, in some skill areas (notably the interactive skills) they do even worse than the larger group. According to his research, 5 to 9 is the optimum class size for effective language instruction. Rosenbaum (1969) calculated that in a class of 15 which is typical of college foreign language classes, students only have an average of 1.7 minutes speaking time per period. Where is the point of diminishing return in speaking ability as regressed on available class time for speaking? Is better management of the learning environment by automation the answer? Banathy and Jordan (1969) designed a classroom laboratory instructional system; they found that students learning in the system were significantly different only in Listening from students in conventional classes

- about equal effectiveness with drastically lowered efficiency. Computer-assisted instruction (Rosenbaum, 1969) appeared to increase obtained achievement in Reading and Writing when compared to non-CAI students; there were no significant differences between the two groups in Listening and Speaking. Increased effectiveness at what cost?

An old point of controversy is the question at what time the written word should be introduced in relation to the spoken word. Audio-lingual theory holds that introduction of written symbols should be delayed in order to prevent interference of spelling with pronunciation, but empirical results are not unambiguous: Muller (1965) concluded that with Portuguese students, early introduction to the written word inhibited learning of correct pronunciation and intonation patterns. Estarellas and Reagan (1966) found that teaching the sounds and letters of Spanish simultaneously aided the student in the mastery of all language skills. Hawkins (1971) maintained that there is an advantage to be gained by introducing the written word immediately - for all languages studied. Lado (1972) suggested it is more effective to learn to read a language simultaneously with learning to speak it, as it need not interfere, but may actually facilitate it. Postovsky (1974) again found that in learning Russian, adult students developed better overall language proficiency when oral practice was delayed in the initial phase of instruction, provided that this pre-vocal period was devoted to training in aural comprehension and written practice from spoken input.

What is a teacher to do? It would certainly be more efficient to introduce the written word earlier than has previously been

suggested. How effective would that instructional strategy be when compared to delayed presentation? It appears from the available evidence that effectiveness and efficiency can be maximized by introducing the written representation from spoken input and by consciously teaching for possible sources of interference.

Learning a language in context is a principle basic to several instructional strategies. Carroll (1970) states that there is no empirical research available to tell the teacher whether vocabulary should be learned in context. Apparently, the conceptualization of "context" is difficult to agree on: does it require the use of the word simply in a different sentence or is a concept embracing the entire semantic range of the word the meaning of context? Or does context mean referential support? Holley's (1973) study of vocabulary learning in context with varying amounts of new word densities produced surprising results: She found that over a range from 1 new word per 150 known words up to 1 new word per 15 known words, vocabulary learning continued to increase without reducing comprehension or students' ratings of enjoyability of material. This result contrasts with Carroll and Burke's (1965) study concerning the learning of pairs of words in the native tongue and the foreign language; they found a definite decrease in learning over one sitting which markedly increased the time required for learning a new pair of words. They concluded that it would be more efficient and effective to break up vocabulary learning into sittings of shorter duration.

There is some experimental evidence to support the assumption that it is a more effective instructional strategy which includes pictures while students are learning sentences. McKinnon (1965)

taught a simplified pidgin language of New Guinea to grade 3 pupils by three strategies: first, by pattern practice: sentences were presented and pupils had to repeat them until they thought they could say them well ; another group was given a pictorial representation of the meaning of the sentence in addition to pattern practice; a third strategy involved asking the pupils to compose the sentence while looking at the picture, before the tape gave the correct sentence; the children could then replay the sentence as often as they liked. The last strategy requiring active involvement with pictorial support was more effective than passive referential support, which in turn was more effective than pattern practice by itself. Furthermore, the teacher's explanation of grammatical points was more effective and efficient compared to the strategy where pupils figured out the point by themselves.

Jarvis and Hatfield (1971) considered contextualization of foreign language material to be more effective than simple Drill practice. They hypothesized that Drill classes (in which students practised points of grammar in all varieties of pattern drills, cued question and answer practice, and multiple response practice) would have lower achievement in real-life communication situations than Contextual classes where practice was afforded primarily through personalized questions and answers and discussions of personally meaningful topics. The latter did exceed the Drill students in Speaking and Writing, but did not differ in Listening and Reading.

One could continue for quite some time to discuss the effectiveness-efficiency dimension (or our lack of knowledge of it) in

foreign language teaching and learning, but I hope that I have been able to support my contention that (1) there are no universally applicable to the teaching situation; (2) that we should not accept educational dogma without empirical evidence; (3) that the classroom teacher is in a very good position to conduct research which is meaningful, and in all likelihood, more valid for his situation than that carried out in broad comparisons or artificial lab situations; and (4) that the effectiveness-efficiency dimension, along which all instructional strategies can be evaluated, provides a useful conceptual framework for such action research.

Politzer (1970) and Jarvis and Hatfield (1971) have addressed themselves to the question of the teacher's conscious selection of instructional strategies and suggested that there is a definite relationship between the frequency of occurrence of an instructional strategy and its effectiveness, viz. a sharp rise in productivity, then a leveling-off, and finally even a decline in students' learning as the teacher continues to use the same strategy. The ability to find this point at which the increase in effectiveness of an instructional strategy does not justify a further increase in effort expended (i.e. decreased efficiency) is, in my opinion, basic to success in teaching a foreign language.

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