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Notes and Comments

Direct and Indirect Measurement of Effects of Specific Instruction: Evidence from Sentence Combining

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Research on instruction, particularly instruction on writing, has provided some clues about general effectiveness (e.g., improved holistic quality), but seldom provides specific information about effects directly attributable to the focus of the instruction. Such effects are often difficult to assess because what has been taught is difficult to define precisely. Furthermore, such specific information is often considered less important than more global effects. However, if we are to understand the effect of instruction, we should examine those particular effects in order to construct testable models and hypotheses.

One particular method of writing instruction, Sentence-Combining (SC), provides us a window for examining those particular effects, and thus might provide more general insight into how direct instruction is perceived, internalized, retained, and used. Since teaching SC can involve teaching particular, definable and countable structures, one can directly measure the degree to which students are affected by examining the frequency with which those structures are used by students prior to and immediately after instruction.

In this study, we examined such evidence, looking in particular at whether instruction on a single structure would alter frequency of use and/or global syntactic complexity, and whether this instruction (which is similar to what Smith and Combs [1980] called the "covert cue") lasted beyond the immediate post-test.

Procedure

We used Smith and Combs' (1980) method, two hours of programmed SC instruction, because their data showed that such short duration SC treatments cause a measureable effect in writing and because the method allows greater control over external variables since attention is focussed exclusively on SC. We modified their method by restricting instruction to just the Relative Clause, the Appositive, and the Infinitive Nominal. These were selected because of their transformational and structural relationships and because they have different frequencies of occurrence.

Three groups of college freshmen in composition courses wrote pre-
test (PRE) and post-test (POST) essays and then, one week later, revised their post-test (POST-R). We did not use Smith and Combs' "overt cue," but rather, simply had the teachers tell the students to revise their essays to improve them. The PRE and POST topics were counter-balanced. Both topics were in the expository mode and students were asked to discuss how their childhood had affected their lives today or their career choices.

The instruction consisted of programmed SC materials designed to teach the one structure given to each group. Each student's packet contained a preface which explained that learning the structure would enhance the effectiveness of the student's writing and provided sample input and combined sentences and several practice sets. The students were allowed one class period (50 min.) to complete the instructional materials.

Our original subject pool contained about 61 students. Due to absences and our criterion that each student must complete every task, our final N was considerably smaller: Group 1 (Appositive) 8 Ss; Group 2 (Relative Clause) 9 Ss; and Group 3 (Infinitive Nominal) 12 Ss.

Analysis of the Data

The three essays from each student were analyzed for T-unit and clause length and for the frequency of use of the target structure. The POST and POST-R were compared to determine what each student did with each use of the target structure. Four types of change were tabulated: 1) No change: a target structure was retained in POST-R. 2) Deletion: a use of a target structure in POST was not retained or converted to any other structure in POST-R. 3) Addition: a structure used in POST-R was not derived from any structure in POST. 4) Conversion: a) a target structure in POST was converted to a different structure in POST-R, or b) a target structure in POST-R was converted from some other structure in POST.

Results

Unlike other SC studies, Smith and Combs in particular, our results do not show consistent increases in either W/TU or W/CL from PRE to POST (Figure 1). Group 3 (Infinitive Nominal) increased W/TU whereas the other groups decreased, but on W/CL, Group 2 (Relative Clause) decreased whereas the other groups increased. The comparison on POST and POST-R indicates that the groups, in general, increased both measures to levels exceeding those demonstrated on PRE. Group 2 increased W/CL but only to about the length on PRE.

These results would indicate that specific instruction in each structure
produces quite varied, and not easily interpretable results. However, these global syntax measures are indirect measures. One could claim, and indeed we would, that such measures are so influenced by other variables that they do not measure the true effects of the actual instruction.

The results of the frequency of use of target structures are presented in Figure 2. Since students who wrote more words or T-units would have more opportunities to use the targets, we calculated frequency per 100 words.

All three groups increased the frequency of their respective targets on POST, but they then decreased frequency on POST-R. Groups 1 and 2 decreased to approximately their PRE frequency whereas Group 3 decreased only slightly. These data present a quite different picture than the global syntax data. Instead of a confused set of patterns, one emerges.
The data clearly indicate that teaching students a structure does alter their behavior; they increase use of that structure. However, the increase does not seem to have a long life. One week later, the students drop back in their frequency. This too is quite different from the global syntax measures which showed increases on the POST-R. The frequency data indicate that the instructional cue was strong enough to create spikes in frequency of use, but that cue seems to be released rather quickly.

The results from the detailed comparison of use of targets in POST and POST-R show that all three groups added and deleted targets with the same frequency, deletions always about 7% higher. Group 2 and Group 3 also converted to and from with the same frequency. The differences were in Group 1’s pattern of changes. These students retained a much higher percentage of their targets than did the other groups (67%
vs. 37% and 48%), and they converted three times as many non-appositives in the POST to appositives in the POST-R.

A closer examination of the conversions showed that the majority in both Group 1 and Group 2 involved, not surprisingly, main clauses. Group 1 converted 61% to or from main clauses, and Group 2, 70%. Group 3 converted only 39% to or from main clauses, but 20% of their conversions involved relative clauses. Thus, in all groups, the dominant focus seemed to be at the clausal (main or subordinate) level. This would indicate that the sentence combining concept in which they were instructed did affect their revision strategies. Only Group 3 converted a significant percentage of nominals (30% to or from gerunds), but this would be expected.

Thus, in general, the results of this study indicate what we have suspected: direct instruction causes students to alter specific behaviors, but those new ways may not be long lasting. But the results also indicate that direct measurement of what was taught provides results which are quite different from indirect, ostensibly related measurements. Thus, the retention of complexity cited by Combs (1976) and by Kerek, Daiker, and Morenberg (1980) may only be a global complexity which length measures can indicate. Whether those students retained the ability (or desire) to use the specific structures with higher frequencies or upon demand is unknown. The data from our research indicate that decreases would be expected. However, it remains unknown what would happen if the structures were later reinforced. In the particular case of instruction to composition, especially in anything as specific as SC, there does seem to be an immediate payoff, even from instruction which is highly specific and of very short duration.

References

