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ANIMATING GRAMMAR: PRINCIPLES FOR THE DEVELOPMENT OF VIDEO-TAPE MATERIALS

In September of 1975, we joined with three friends and colleagues in the English Department of The City College of New York to work on developing video-taped curricular materials. Our group had been organized in response to a hope that the use of video tape could alleviate the staggering teaching burden that the admission of great numbers of underprepared students had placed on our department and on English Departments in the entire City University.

The thought that audio-visual materials might provide assistance in such work alternately allured and offended us. But, we had a mandate from the City University, some funding from its Chancellor, and a promise to produce whatever we wrote from The New York Network, an affiliate of The State University, so we agreed to consider the possibility. What follows is the story of our slow conversion to a cautious belief in the potential of video tape for teaching and a consideration of the most instructive lessons we learned along the way, lessons we feel may be critical to the development of pedagogically sound and useful video materials.

The most experienced producers of educational technology have complained about the reluctance of teachers, particularly of English teachers, to use anything that is connected to a machine. They imagine us as stubborn, closed-minded, and probably clumsy—inhibited by our inability to thread a film on a projector or insert a cassette into a tape recorder. It may be true that teachers whose subject is the spoken and written word are reluctant to turn their classes over to an electronic device, and it may even be true that we are particularly clumsy as a group, but we suspected that at the heart of the teacher's reluctance to use technology has been the poor quality of the material that technology has presented. Generally, audio-visual instructional material has not

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met the demands of its student audience, which has watched enormous amounts of commercial TV and has sophisticated expectations of what material on a video screen should look like. Much of the amateur video material, perhaps filmed by an untrained photographer with a hand-held camera or a stationary tripod, using homemade settings and amateur actors, has proved to be painfully non-visual when compared, as it inevitably is, with even the most conventional televised dramatizations. Or, if the form of the video offering has been slick enough to please the audience, with perhaps some professional animation or catchy color film techniques, then the content has often been uninspiring. For instance, the most conventional of material, available in many standard grammar handbooks, might be read aloud in a calmly professional voice, apparently on the theory that people who are unskilled readers should be able to learn more successfully from a talking handbook than from a printed one. We theorized that it may not have been the notion of technological assistance that teachers resisted, but the poorly conceived, poorly written products technology has offered.

When our group began to investigate video techniques, therefore, we decided that we would not limit ourselves to looking at materials specifically designed to be “educational.” We were interested in what the medium of video *could* do, not in what it *had* done. We were already familiar with the educational materials being used around the country, since we had screened many of these at the Writing Lab at City College and at the CUNY Instructional Resource Center. We arranged with Channel 13, New York’s educational television network, to look at a large selection of animated films from its library—animation that ranged from the dancing clay morsels and fluid sand pictures of Eliot Noyes Jr. to the cool numerical games played by the Charles Eames lab in films made for IBM. We went to Soho and to the Museum of Modern Art to look at what was being done by the best of the new film makers and animators. We talked to graphic artists, to designers of commercials, to TV producers, to anyone we could find who had done exciting things with words and images moving across the screen. We were really not quite sure what we were looking for, but in retrospect it seems that we were searching for techniques that would justify using technology for teaching, that would accomplish something that a conventional teacher, even with great expertise, could not accomplish, that a conventional textbook presentation, no matter how enticingly presented, could not reveal. The greatest value of this search was not in any concrete models that we found—there really weren’t any models for

what we wanted to do—but in the expansion of our visions of the possibilities that video offered. Later, we would deal with the practical realities of what we *could* do, of what we could afford.

There was one piece of film that came closer than anything else we saw to providing a model for what we would eventually do, and that was a one-minute film done by the Charles Eames lab for IBM. The film attempted to clarify a principle in algebra, a subject unfamiliar to all five of us. It made its point by rapidly substituting numbers in an equation, with no voice-over explanation of what was going on. At the end of these beautifully animated number substitutions accompanied by music, we all felt that we had had a learning experience. That is, by having to concentrate on the movement of numbers on the screen, by having no explanation of what was going on, and by seeing, because of repetitions and substitutions, a pattern evolving in the sequence we watched, we had inductively grasped the principle being “taught.” Of course, the learning took place out of context, and we couldn’t relate it to anything else we knew. But there was no question that learning had taken place, and that it had happened in a new and exciting way.

It was perhaps our strongly positive reaction to the Eames film and our strongly negative reaction to so much of the conventional material that we had seen that led us to develop some of the principles on which all of our later work was based. As we began to meet regularly, we did two things: 1) we developed an outline of the sequence of material that we would cover in our video “courses”; and 2) we began to make “rules” for ourselves about how we should and should not use the medium. The evolution of the “rules” was much less systematic than the development of the syllabus. We didn’t even know that we had developed rules, in fact, until we found ourselves applying them. But they did develop, and it might be useful to list them here:

Rule #1.

Use the screen to produce “illuminations,” insights that are hard to get from the printed page. Never put anything on the screen that could be taught just as well in a book. (This rule caused us to focus on word animation on the screen—words can’t move around on the printed page.)

Rule #2.

Use the screen to evoke the students’ own intuitions about language. Never explain anything until after the student has had a chance to grasp it intuitively from the screen. Once the intuition is evoked, it is all right to explain, but voice-over

explanations should be held until the end of a video section, and be kept to a minimum.

Rule #3.

Always proceed inductively on the tapes, presenting pieces of information, but not necessarily providing the whole picture until the student has worked through the parts and can perceive “answers” on his own. (Thus, for example, in Unit I a student will watch sentence kernel expansion and then reduction of the expanded sentence back down to the kernel before he is ever told that at the heart of every sentence is a sentence kernel that can be expanded almost endlessly. By the time that information is spoken, the student will already be conscious of it even if he may not have phrased it quite the same way.)

Rule #4.

Combat student passivity by constantly stopping the tape and having the student do exercises that make him use the insights he has just gained from the tape. The tapes provide patterns for doing things with sentences, but the patterns are useless unless the student can employ them himself.

Rule #5.

The main goal of the material on the screen should never be:

- a) to entertain
- b) to present direct instruction that could be done in a book.

There might be parts of a tape that either entertain or present direct instruction, but these segments should always be kept at a minimum and be secondary to the main function of the tapes, which is to illuminate principles.

The pedagogical guidelines on which the tapes are based were somewhat easier to come by. It was surprising to us how often we found that we agreed about what we wanted to teach, despite differing notions of how the teaching might be accomplished. Our decision to work in a group had been based on the fact that there was just too much work for any one person to do, and on the fact that we wanted a chance to solidify some of the ideas that we all had been developing at City College over the past years. More important, the decision grew from our sense that as

co-workers we could act as sounding boards for one another, thereby providing a greater refinement of our scripts and a wider applicability of our products than would be possible if we were to work independently.

The decision could have been a disastrous one—groups are notorious for procrastinating as well as arguing—but, for reasons we still don't completely understand, the group method worked better than we had even hoped. (We have since found out that the outstanding curriculum produced by the Open University in Britain was all developed by teams consisting of from four to thirty people.)

The chemistry of a group is complicated. We had all taught together for a number of years. We had often talked about teaching methodologies and language theories, both on an *ad hoc* basis and in cooperative teaching experiences and departmental meetings. Two of us had degrees in linguistics, and the rest had read widely in the field. We were all interested in the practical applications of linguistic theory, and dissatisfied with the options that traditional descriptive and prescriptive grammars offered. They provided a vocabulary of grammatical terminology to be memorized without presenting pragmatic insights into the actual power of the phenomena they identified or, worse, focused on teaching “errors,” the comma splice one week, the fragment the next. Research had shown that there was very little carry-over from the learning of grammatical rules to the application of these rules in writing. Somehow, most grammar books seemed to have gotten things backward, beginning with error and later moving on to an understanding of the sentence. We had all experimented in class with strategies that would help students gain control of the sentence, with ways to get them to expand sentences, to combine and de-combine them, using the methods suggested by the sentence-combining work of John Mellon and Frank O'Hare. This linguistic approach to grammar seemed to lend itself particularly well to video—we had all often wished that we could illustrate combinations by making words move around the blackboard in the way they could move around a screen. We all agreed that the most important activity for students in an English class is writing, but we agreed that the most effective methods of generating what we think of as free writing cannot be done as effectively on a screen as in a classroom with a teacher and other students. We would, therefore, leave pre-writing exercises and editing and a wide range of other techniques out of our video course and concentrate on what we thought the medium might be able to do best—teach students as much as we could about the way the sentence works.

The set of pedagogical guidelines that evolved can be summarized briefly:

- 1) We would cover only one part of this course in our video material—that which related to sentence structure. This would include, indirectly, attention to error, since the student's ability to identify error would presumably increase with his increased ability to understand the sentence, but supplementary materials on specific errors such as subject-verb agreement and verb tense, would be necessary. We would not attempt to deal with "free" writing, assuming that teachers would have their own strategies for this part of the course. Our material, however, would relate to "free" writing, because the controlled exercises in writing sentences could be related to less controlled writing experiences, and the student's growing awareness of syntactic choices would eventually lead to a greater awareness of differences in literary styles. This awareness of style would be useful in the reading done in the course, as well as the writing.
- 2) To produce the insights about language we hoped to achieve, we would rely heavily, though not solely, on sentence combining.
- 3) We would lead the students from an intuitive understanding of how the language works to an ability to analyze sentences systematically. In this we differed from sentence combining texts such as William Strong's *Sentence Combining*, which rely only on students' intuition. Although we agreed with Frank O'Hare that there was little to be gained from teaching transformational or any other grammar in isolation, we felt that adult students such as ours would benefit from doing some fairly rigorous analysis of the sentences they were producing. However, we felt that we must first give them the confidence that they could in fact produce complex sentence structures. After they had done this, after they had "played" with sentences for three or four weeks, they would be ready to examine analytically what they had been doing intuitively.
- 4) Our goal in everything we taught would be twofold. We wanted to help students:
 - a. Gain greater syntactic fluency, to be able to control the structures that they used. The goal was not necessarily to write long sentences, but to develop a wide range of options for the sentences they wrote.

- b. Use their insights about the sentence to correct errors in their writing.

After agreeing on these pedagogical guidelines, we were able to outline the sequence of scripts that we would produce. We decided that each script should represent one week's work, and would take up about fifteen minutes of video time. (The rest of the hour would be left for workbook activities.) The sequence evolved naturally from the pedagogical guidelines we had outlined and from strategies we had been using in our classrooms. The first three weeks would be spent calling on the students' intuitions to show them that they actually knew a good deal about language, and to raise questions in their minds that would be answered as the tapes progressed. We planned the first unit, an introduction to the sentence, to function as an overview of all that we would hope to illustrate and analyze in subsequent units. Thus, it began with the fundamental notion that any group of words that can be called a sentence is divisible into two parts, which we called the subject part and the verb part in order to be as simple and non-grammatical as possible. Students would watch sentences divide according to that principle, then try in the workbook to make divisions themselves on the basis of what they thought had happened on the screen. In doing this, they would find out that what may have seemed to be a simple process was in fact a difficult one, requiring a great deal of information about the way a sentence was put together, but they would be reassured in the workbook that in the next weeks of the course they would gradually acquire this information. In the second half of Unit I they would be introduced to the idea that at the heart of every sentence is a sentence kernel, and that the kernel can be expanded almost endlessly through the use of a limited set of basic modification structures, so far unnamed. Finally, the unit concluded that anything that could be attached to a sentence could also be detached, down to the unmodified kernel, while the sentence still remained a sentence. This approach eschewed the traditional notion that a sentence expressed a complete thought in favor of what we considered to be a more pragmatic definition. It remained for us to explore the kernel and the modification process, first inductively, then analytically.

In planning Unit II, we struggled to find an accurate and quantifiable way of explaining to students what constitutes a minimal sentence, or kernel. We finally came to support Paul Roberts' position that the concept of "sentenceness" is so fundamental to a mature speaker's use of language that "if you do not already know what an English sentence is,

you will when you have studied sentence patterns.”¹ Thus we simply decided to present unexpanded sentence patterns to students in Unit II, with the confidence that reinforcement of patterns would raise consciousness about phenomena that were, in mature speakers, deeply ingrained.

In outlining Units I and II, then, we had established our basic principle, that a sentence consists of a kernel and whatever is attached to it. In Unit III, we proposed to introduce procedures for sentence combining by actually combining a number of kernels into an expanded sentence on the screen. Starting with a list of unmodified kernels carefully selected to yield a full range of modification structures, we would focus on them one at a time, deleting parts of them that repeated the base sentence, adding or changing any necessary elements to produce modifiers and then literally floating them into their appropriate new positions in an expanding sentence.

After asking students to experiment with the combining process by recombining their own sentences in the workbook, we would finally be ready to build on the intuitions about sentence structure aroused during the first three weeks in the course and to begin analyzing the ways in which modification can be attached to a kernel. So, in Unit IV, we would take the major groups of function words and word endings that create problems in student syntax—relative pronouns, participial phrases, markers, and subordinating and coordinating conjunctions—and after illustrating the general function of such words and endings to establish structure rather than meaning in sentences, we would look at each group individually to see how it could be generated from independent sentences. So, for instance, the initial kernels

The people left early.

The people came late.

could be combined on the screen to produce the expanded sentence

The people who came late left early.

by deleting the repeated words in the second sentence (“The people”), substituting the relative pronoun *who*, and moving the resultant relative clause to a position following “The people” in the top sentence. All this would happen to numerous pairs of sentences on the screen without verbal explanation, allowing students to see directly where such structures come from and what they consist of. The same procedure would be applied to show the derivation of present and past participial modifiers from sentences containing verbs in the continuous tenses or

¹Paul Roberts, *Patterns of English*, (New York: Harcourt, Brace & World, 1956), p. 58.

the passive voice. Finally, the movement of words on the screen would lead students to explore the ability of both subordinating and coordinating conjunctions to unite sentence elements or full sentences. At the same time, different combinations forming on the screen would lead students to consider variations in meaning created by different coordinators.

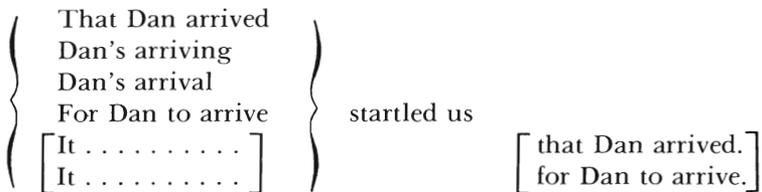
Having established a conscious awareness, then, of the sources and workings of many function words,² we were ready to proceed to Unit V, which would consider the positions that different modification structures can take in sentences. This unit would rely on the subject part-verb part distinction established in Unit I and look at modifiers in their relationships to one or the other half of the sentence. It would establish the most normal positions for specific modification structures to take—adjectives preceding the nouns they modified, subordinate clauses following verbs—and assess as well the power that different structures have to move out of those normative positions and occupy others, adjectives, for example, shifting to the position following the noun or subordinate clauses moving to the front of a sentence.

Our last analytical unit, Unit VI, would focus on nominalizations, advanced structures that many students have no intuitive access to because they are rare in ordinary speech. Yet, because noun clauses are characteristic of mature and literate writing and because one kind of nominalized structure, the indirect question, is a subtle source of error in the writing of non-standard English speakers, we felt that no course in sentence analysis could be complete without consideration of those structures. Our tape would follow the now firmly established pattern: it would combine kernel sentences, highlighting as it did so the changes that are required to transform an independent sentence into a nominalized structure. It would explore six ways of creating a noun clause from a sentence, so that to combine the kernels

Something startled us.

Dan arrived.

the second kernel was altered in the following ways to make it replace “something:”



²Articles were eliminated from consideration since they create little trouble for our target population of native or fluent English speakers.

Changes were introduced one at a time or, in indirect questions, cumulatively, by first providing kernels that required only one change to nominalize them, then providing ones that required several or all the possible changes. Thus, finally, in combining the kernels

I asked John something.
Are you coming?

to yield

I asked John if he was coming.

the student would watch the question change in the following ways before it could replace “something”: adding “if” or “whether” since the question contained no question word, restoring statement order by moving the auxiliary to its position following the subject, changing the tense to agree with the tense of the carrier sentence, and changing the pronoun to eliminate the second person of direct address.

In Unit VII we would return to the intuitive approach used in the first three units, again asking students to watch a group of sentence kernels combine into a long sentence. Unit VII would be different from Unit III, however, because the sentence that would develop on the screen would be a rather complicated one, and because, while growing, it would go through a series of editorial changes, or choices, that show how the kind of syntactic flexibility we had been emphasizing could be applied to actual writing. In the workbook, there would be several exercises that would begin to raise questions about style. For example, students would be asked to combine the kernels into sentences different from the sentences they saw on the screen, and to indicate which version they prefer and why. At this point in the course they would be capable of making judgments about the way language works, and able to enjoy making these judgments, perhaps only slightly inhibited by the fact that the author of the passage that they watch develop on the screen is William Faulkner. And, in this final unit, the point would be made that it is not necessarily better to write long sentences than short sentences—what is important is to be able to consciously choose what kinds of sentences one will write. This point is best made by the passage itself which includes one long and complex sentence and four short simple ones.

When she was twelve years old, her father and mother died in the same summer, in a log house of three rooms and a hall, without screens, in a room lighted by a bug-swirled kerosene lamp, the naked floor worn smooth as old silver by naked feet. She was the

youngest living child. Her mother died first. She said, “Take care of paw.” Lena did so.

As our video scripts began to evolve for each of the units, we found something else evolving as well. The “rules” we had agreed upon for the use of the medium implied the existence of something beyond the material presented on the screen—some kind of workbook. We didn’t know at the start just what this workbook would be like, but it began to take shape as we worked. At first, it was a catch-all for all the things we didn’t want to do on the screen, a repository for some of our rejected scripts, and for some of the more explicit explanation of linguistic phenomena that we tried to keep out of the video presentation. Eventually, we found a pattern emerging from the material that began to accumulate in the folder we had marked “Workbook.” Most of the material there, in addition to explaining more explicitly what the students had seen on the screen and asking them to carry out exercises in which they applied what they had just learned, would deal with subtle nuances of grammar suggested but not explored by the video material. For example, in the workbook for Unit II we would initially ask students to recognize and to be able to produce two-part, three-part, and four-part sentence kernels, but we would not ask them to analyze the differences between the different types of kernel sentences. We knew that some students would want more explanation of the differences, and some teachers would want to explore the grammatical explanation of sentence kernels much further than we had in the intuitive approach we had taken on the screen, so we decided to add a section of the workbook called “Expertise,” which was meant to be optional and which would answer some of the grammatical questions raised by the tapes. The “Expertise” sections of the workbooks are particularly important in the units that are highly analytical and which provoke questions about grammar that we deemed too intricate for most students to deal with in a basic writing course. But we knew that these grammatical questions might come up, and we wanted to provide a means of dealing with them. In the unit on nominalizations, for instance, all we would require the student to do would be to be able to produce nominalized structures according to patterns he sees on the screen. In the “Expertise” section of the workbook, however, we would deal with many of the complicated questions of verb tense that come up when working with nominalized structures. From our recent experiences using the tapes, we have decided that this “Expertise” section should probably be bound separately, since its complexity is confusing rather than enlightening to many students but continues to be useful to teachers and occasional students.

The structuring of the workbook raised another important pedagogical question that we may not have been conscious of when we started, the question of the level of the material we were presenting. There is always an assumption that remedial students must be given material that is “simple,” which usually translates as watered down and childish. But, we had all worked with remedial students for many years, and shared the conviction that, because these students are intelligent adults, they should be given material that is appropriate to adults. The job of teachers is not to “simplify” material, but to structure lessons in such a way that each step is clear and that the logical progression leads students to learn what is being taught. It is the difference between the teacher who would translate Shakespeare into a version of modern English and the teacher who would help students master short passages of the text, a line, perhaps a word at a time, until they had mastered the technique, broken the code, of this very special kind of reading.

One of the criticisms we received at first from the people who produced our tapes was that the reading level of the material in the scripts was too difficult. It took a long time for them to see that this was intentional. College students have to learn to deal with long analytical passages in textbooks; we were giving them a strategy for doing so. But the workbook was essential to that strategy; it had to be structured as carefully as the tapes, and had to be coordinated with the tapes so that students would be led to carry out exercises that would reinforce what they had just learned on the tapes as well as raise questions that would prepare them for the next bit of information they were to receive on the tapes. The workbook was not written merely as support for the tapes, but is meant to interact with the tapes.

It is difficult for people who are producing media-based material to realize that the most important medium may still be print. But it is. The screen may be used to illuminate a point, but if this point is not reinforced by the printed page, it will be quickly forgotten. Reading and writing are very different from watching a screen. The British Open University, which has the most highly sophisticated video materials used in education today, uses such materials as only a small part of their courses. Students see one broadcast of a half hour every two weeks, and hear one radio program a week. The rest of their work is done through reading and writing.

One other aspect of the workbook that should be explained is our conscious rejection of the “mastery learning” approach. There are no pre-tests and post-tests in the workbook, and this may be seen by some teachers as a flaw. But what we set out to teach was different from the

discrete bits of information being taught by traditional skills programs. We are not opposed to mastery learning, but we have become aware of its limitations. A student can be taught a particular rule about, say, subject-verb agreement, and can be made to practice the application of that rule until he can pass a test that shows he has mastered it. This is a useful kind of exercise, and we think it is particularly useful if done in conjunction with the kind of understanding of the language that we are trying to encourage. But the material we wanted the students to master could not be adequately tested by exercises that had "right" and "wrong" answers. We were trying to get them to experiment with language, to try out different options, to recognize that there are many correct possibilities, and so it was impossible for us to anticipate what their answers might be. For this reason, it is important that a trained tutor be available to help students who want reassurance about the sentences they have produced. But students using the tapes must be told that they need not produce "right" answers. The questions raised by the exercises in the workbook are far more important than the correctness of the sentences they lead students to write.

The final step in the process we are describing was the actual producing of the tapes. Perhaps the most significant thing about this stage was that it came so late. We didn't even think about the actual production of the tapes until we had gone through the entire process we have outlined—defining the pedagogical guidelines, deciding how to use the medium, writing the scripts, and designing the workbook. The mistake that is often made is that producers are in a hurry to develop a pilot, usually so that they will have something concrete to show, a potential product. The trouble is, the product may be the wrong one if it hasn't been properly defined in advance. Instead, when we finally produced our pilot, we knew exactly what the entire course was going to be about, and so we were able to pay careful attention to developing a repertoire of video techniques that would remain consistent throughout the series and enhance each of the modules. As our repertoire expanded, we could modify our unproduced scripts to incorporate procedures that had already worked successfully in completed units and to eliminate operations that had thus become superfluous.

We did not merely hand over scripts to a producer and wait quietly for a finished product. Instead, we worked closely with the producer, Sam Hallman of the New York Network, during every step of the production process. This process was an education for everyone. We learned as much as we could about the kinds of things that could be done on video tape, as opposed to film. We learned, too, to transpose our scripts into

storyboard frames and thus diminish the persistent and necessary distance between a written script and a video animation. The technical specialists—a producer, a technical director, an art director, and a production assistant—were all devoted to exploring ways that the medium of video could be used to get across our pedagogical messages. They made no compromises. If anything, they went further than we expected them to, spending a great deal of time and money to stretch the medium to achieve the technical effects we wanted. We also had access to highly sophisticated equipment and technical staff in Albany, where the New York Network is located.

Yet another step that must be carried out during the development of any curricular materials is testing. We hope soon to be able to report the results of the formal testing of *The English Modules* currently being done. We are attempting to determine whether there has been any significant change in the control and maturity of syntactic structures used by a number of students who have worked with the tapes and accompanying workbooks. For the moment, all we have is informal feedback from teachers and students using the tapes on approximately forty campuses. Many students, we are told, find the tapes illuminating, while others need help in learning to learn from a screen. Teachers who report the best results seem to be the ones who watch the tapes with their students (particularly if they are remedial students) and “coach” them as they watch. Students tend to watch anything on television passively, and so it takes them a while to become aware of the kinds of responses they are meant to give to the material being presented on the screen. Teachers must at first reinforce the questions raised on the tapes and encourage students to participate in the inductive learning experience. Teachers themselves are enthusiastic about using the tapes, because the tapes often provide them with a new way of talking about language. Teachers who have been dissatisfied with using traditional grammar but at the same time sense a need to consider sentences analytically are interested in the possibilities for teaching that the tapes suggest. It will be some time before we have fully evaluated the tapes through formal testing, but we are sufficiently encouraged by the informal responses we have had so far to be convinced that video tapes can indeed be successfully used to introduce innovative teaching methods to a wide audience of teachers and to provide new insights to a large number of students.

In describing the process through which we developed *The English Modules*, which represent a relatively small amount of curricular material, we realize that we are describing a painstaking and expensive procedure. It is clear to us now why commercial publishers have not

been able to turn out first-rate audio-visual material. We were permitted a luxury—to experiment with an expensive medium—mainly because the New York Network is a part of the State University, and it had been decided that a portion of their production budget should be spent on producing innovative educational materials. If commercial publishers are unwilling to spend money on what is essentially “research and development,” or the exploration of new methods of presenting material, then government and foundation money will have to support this kind of work. To develop the content of *The English Modules*, (a far less expensive procedure than the production of the tapes themselves) we were supported by money from the CUNY Chancellor, in the form of released time, and by a grant from the New York Foundation. We were being paid to look into new ways of teaching, and we feel that our effort was well worth the investment. More than ever, we see the need for curricular innovation, but more than ever, we see how expensive and difficult it is to produce anything innovative. We have, in fact, become convinced that educational technology in this country is relatively ineffective not because there is an intrinsic flaw in the notion of educational technology itself but because the producers of what is known as educational software have so often underestimated the difficulty of creating first-rate materials that will significantly affect the ability of our students to learn.³

³*The English Modules* were developed in collaboration with The New York Network by Sarah D'Eloia, Barbara Gray, Mina Shaughnessy, Blanche Skurmick, and Alice Trillin.