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ABSTRACT

Maxims derived from recent theory in learning and instruction and from reflection on excellent practice can be applied to teacher education, not only to improve the training of prospective teachers, but also to improve their ability to teach others. Especially useful are examples from Reading Recovery, a successful literacy training program. Some of the maxims include: (1) instruction should use a whole-to-part approach; (2) instruction should be rooted in authentic, real world situations; (3) instruction should foster flexibility through multiple perspectives; (4) instruction should be sensitive to the developmental progression of students; (5) instruction should assume an action orientation; (6) instruction should involve modeling; (7) instruction should involve coaching; (8) instruction should involve scaffolding; and (9) instruction should foster reflection and articulation. The great irony of teacher education appears to be that prospective teachers are taught in ways that are inconsistent with the maxims of effective learning and instruction. An experimental preservice education course at the University of Illinois illustrates on a small scale how the maxims developed can be applied to teacher education. (RS)

CENTER FOR THE STUDY OF READING

Technical Report No. 491

SOME MAXIMS FOR LEARNING AND INSTRUCTION

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Abstract

This report describes some maxims derived from recent theory in learning and instruction and from reflection on excellent practice. The maxims are explained and illustrated using examples from a successful literacy training program, Reading Recovery. The report then speculates on how the maxims could be applied to teacher education--not only to improve the training of prospective teachers, but also to improve their ability to teach others.

SOME MAXIMS FOR LEARNING AND INSTRUCTION

In this report, we describe some maxims derived from recent theory in learning and instruction and from reflection on excellent practice. We explain and illustrate the maxims using examples from a successful literacy training program, Reading Recovery. Then we speculate on how the maxims could be applied to teacher education--not only to improve the training of prospective teachers, but also to improve their ability to teach others.

We use the word *maxim* instead of, say, *principle* in order to convey a sense of informality and open-endedness. A maxim is a heuristic or rule of thumb, not a universal law. We intend the word *maxim* to convey the idea of a proposition that is conditionally true and for which the relevant conditions cannot be completely specified. Maxims may overlap instead of being mutually exclusive. Creative tension among maxims is possible; completely satisfying one maxim may entail the risk of violating another. To our minds, maxims capture advice about teaching in a manner that felicitously represents what is currently possible and desirable in a theory of instruction.

The maxims we propose are partially derived from the work of cognitive scientists. Among those whose thinking has influenced us is our colleague Rand Spiro, who is investigating the acquisition of knowledge in complex, ill-structured fields such as biomedicine (Spiro, Feltovich, & Coulson, in press). Especially influential in our thinking is the work of Collins, Brown, and colleagues (Brown, Collins, & Duguid, 1989a; Brown, Collins, & Duguid, 1989b; Collins, Brown, & Newman, 1989). They claim that knowledge is "situated," or a product of the activity and context in which it develops; they argue for teaching through a "cognitive apprenticeship" that takes into account the situated nature of knowledge. We have been influenced by the Russian psychologist Vygotsky, who believed that cognitive development begins as a social process, usually between adults and children, and gradually becomes internalized ((Vygotsky, 1978). The maxims are also based on our own experience with successful instruction.

We will illustrate the maxims we propose using features of one example of successful instruction, Reading Recovery. Reading Recovery is a program intended to help first graders who are failing to learn to read. In Reading Recovery, children who fall into the lowest 20% in reading within a class are provided one-on-one 30-minute lessons every day by a teacher trained in the strategies and techniques of the program. The typical lesson includes rereading of books introduced in previous lessons, reading a new book at what is supposed to be just the right level of challenge, composing and writing a brief story, and word study and analysis. The teacher employs special techniques intended to help children develop fluency and to use the strategies that are characteristic of successful readers.

The goal of Reading Recovery is to enable the very poorest readers to make accelerated progress, until they read as well or better than the average child in their class. When properly implemented, the program appears to achieve this ambitious goal. In New Zealand, where the program was pioneered, more than 80% of the children who receive the program are reported to make normal progress in reading after an average of 12 weeks of instruction (Clay, 1985). The program was first introduced in this country in Ohio. The success rate in Ohio is currently reported to be 85% (Pinnell, DeFord, & Lyons, 1988). It should be stressed that the available data suggest that the gains produced by Reading Recovery persist over a period of years.

The consistent success Reading Recovery achieves would almost certainly be impossible without excellent teacher training. Reading Recovery teachers are selected from among experienced elementary school teachers. They receive a year of intensive training in Reading Recovery methods and strategies. The program's goals are for teachers to become sensitive observers of children's reading and writing and to develop facility in making moment-by-moment diagnoses upon which to base instructional decisions. The creators of Reading Recovery say that the program "does not come in a box." They claim the program depends upon carefully nurtured teacher expertise. A group of outside educators and scholars who evaluated Reading Recovery in Ohio concurred that the program would achieve uncertain results if teacher training were attenuated (Pinnell, DeFord, & Lyons, 1988).

Reading Recovery is interesting both at the level of educating children and at the level of teacher training. In the following section, we draw on both levels to exemplify nine maxims for learning and instruction.

The Maxims: Definitions and Examples

Maxim 1: Instruction should use a whole-to-part approach. Generally, a major goal of instruction is for the student to acquire a conceptual model of how parts fit together. Therefore, instruction needs to be framed in terms of complete cases and tasks. Because a sense of the whole task facilitates the subsequent learning of subskills, subconcepts and subskills usually should be taught within the context of the whole. The whole-to-part approach runs counter to the part-to-whole approach of the behaviorist tradition, which holds that component skills need to be taught first.

The whole-to-part maxim is well illustrated by Reading Recovery. Children read several books during every session (including the very first session, with the help of scaffolding provided by the teacher; see Maxim 8), as well as write a brief story. The assumption is that children will make useful discoveries while reading books and writing stories that will advance their knowledge of component skills and concepts. For example, a whole task provides a context that frequently enables a child to decode words that would be impossible if they were encountered in isolation. In contrast, the conventional American reading program rests on the assumption that the component skills need to be taught first. Consequently, most American children learn letters, sounds, and words that have been introduced in isolation and practiced thoroughly before they try to read whole sentences, let alone whole books.

Maxim 2: Instruction should be rooted in authentic, real-world situations. Learners need to work with rich, complex cases and engage in meaningful, functional tasks. Instruction that is not authentic often oversimplifies. Such oversimplification impedes the development of useful representations of knowledge and makes transfer, or the ability to use knowledge in new situations, difficult. Training that employs authentic tasks instills more functional and flexible knowledge.

This maxim is exemplified in several ways by Reading Recovery. One is the use of live lessons in teacher training. At every session, two of the teachers in training bring children whom they tutor regularly and conduct lessons with them behind a one-way window. Under the guidance of the "teacher leader," as the teacher trainer is called in Reading Recovery, the rest of the trainees observe and engage in what is usually a vigorous discussion of all aspects of the lessons. Over the course of a year, each teacher will teach three or four lessons "behind the glass" and participate in a discussion of 40 or so other lessons. This is far and away more exposure to authentic cases than is afforded by most teacher training and staff development.

Maxim 3: Instruction should foster flexibility through multiple perspectives. Like a good work of art, authentic cases and complex tasks can be interpreted at different levels and in different ways. Looking at authentic cases and tasks from multiple perspectives helps novices develop the requisite cognitive flexibility for coping with complexity and novelty.

This maxim, too, is exemplified in several ways by Reading Recovery. One way stems from the variety of different behind-the-glass lessons teachers see over the course of a year. The children taught in these lessons read at different levels and have different strengths and weaknesses. The teachers have different degrees of control over instructional strategies and, like the children, have different strengths and weaknesses. At each session, the teacher leader focuses the group's attention on different aspects of these variegated lessons.

Maxim 4: Instruction should be sensitive to the developmental progression of students. The mastery of complex skills involves a typical, though not necessarily fixed, progression of stages, from novice to expert. Expertise in any skill is characterized by a high degree of conceptual knowledge ("knowledge that") and procedural knowledge ("knowledge how"). Experts also have "executive control" over the skill; that is, they have a "meta-understanding" of their conceptual and procedural knowledge. Experts understand the major elements of the skill, why it works, what it's good for, when and where it should be used, and how to adapt it to varying situations.

Teachers need a sense of the typical stages in the development of the skills they are teaching. Sensitivity to the developmental progression allows a teacher to intervene in ways that will be optimal for growth.

There needs to be a delicate interplay between what a student is able to do and the help the teacher provides.

In Reading Recovery, one of many examples of this maxim is the development of children's ability to hear the sounds in spoken words and produce the associated letters--that is, to spell (see Clay, 1985). A typical progression is hearing and writing initial consonants, hearing and writing other consonants, hearing sounds in sequence, figuring out vowels, and producing letter clusters.

Spelling instruction is presented in the context of writing stories. The teacher finds opportunities for teaching from among the words the child wants to include in stories. At the beginning, the teacher selects short words with a regular phonetic structure. Later, he or she expects the child to tackle words of several syllables and a less regular structure. The teacher tries to choose words that are in the child's "zone of proximal development" (Vygotsky, 1978), that is, words that are neither too easy nor too hard, words that are possible for the child but will require some useful work from which the child can learn something new. With words that are currently beyond the child, the teacher may be satisfied if the child can hear the first sound and write the letter associated with it. The teacher may then write the rest of word for the child.

As an aid to hearing the sounds in words, Reading Recovery teachers draw boxes on a sheet of paper, with one box for each sound in a word, like these:

The first string of boxes is used for words such as *pig* or *car*, the second for words such as *lion* or *train*.

The teacher models saying words slowly and deliberately. He or she clearly articulates every sound, and gives exaggerated emphasis to sounds the child is having trouble hearing. As a means for getting children to slow down and individuate sounds, they are taught to push markers into the boxes while saying a word. In a few days, more or less--depending upon the child--this step is attenuated and then dropped altogether.

To promote careful sound analysis, the teacher asks questions about the words being analyzed, such as "What do you hear?" "Where do you write that?" Children are encouraged to work out as much as they can with questions like these: "What else do you hear?" "What do you hear at the beginning?" "What do you hear at the end?" What do you hear in the middle?"

The child writes the letters he or she can hear and knows how to write. The teacher ensures that the letters are recorded in the right boxes, supplies letters the child cannot hear, and may write letters for sounds the child can hear but not yet write.

Responsibility shifts to the child as soon as the child is able to accept it. The teacher has to avoid doing for the child what the child can do for himself or herself, and this sometimes means keeping abreast of big surges in the child's ability. For example, the teacher should stop saying words for the child when the child can say them with deliberate articulation. At this point, the teacher needs to watch closely for evidence that the child continues to articulate deliberately. Questions occasionally asked, such as, "Did you say it slowly and clearly to yourself?" help the child assume responsibility and remind the child to monitor his or her actions.

Maxim 5: Instruction should assume an action orientation. Learners must be active participants in their own learning, not passive recipients of information. Learning and acting must be intimately related

in order to develop procedural knowledge and link it to conceptual knowledge. Therefore, throughout training, novices must attempt to perform authentic tasks. They must repeatedly perform the tasks expected of expert practitioners.

We have already commented on the fact that from the very beginning, children in Reading Recovery actively read and write. Likewise, from the beginning, teachers learning Reading Recovery are actively involved in teaching and, for instance, spend very little time listening to lectures on pedagogy.

The Reading Recovery teacher is an "active teacher" when working with children, as well as an active learner when in the role of Reading Recovery student. At one Reading Recovery training session, several minutes into a lesson one of the teachers was conducting behind the glass, the teacher leader abruptly said, "That woman is not teaching! She's just sitting there listening to the child read. I hope the rest of you are teaching. These children will not make accelerated progress unless you teach them."

It would be natural enough to expect poor readers to make slow progress. But Reading Recovery teachers are taught to expect the opposite. Accelerated progress is due to more than the diffuse, cumulative effect of a good program. It depends upon the child's making noticeable progress in some particular aspects of reading and writing almost every day. This, in turn, will happen reliably only when the teacher can specify steps the child is ready to take and have good control of the technique required to help the child take these steps.

Maxim 6: Instruction should involve modeling. Instruction may begin with the observation of a master or expert, who models the target skill. By reflectively "thinking aloud," the model may make explicit invisible mental processes that might otherwise remain mysterious to novices. Observation of an expert helps a beginner develop a conceptual model of the task before attempting to execute it. At a later stage of development, observation of an expert can help the novice further refine his or her conceptual model.

Modeling is used with both children and teachers in Reading Recovery. Usually it takes place in a brief moment rather than in the form of a lengthy demonstration. An example is the use of modeling to promote phrasing and fluency. The teacher selects a story to which the child has already been introduced. The story should lend itself to fluent reading. A story that has a rhyme, a considerable amount of dialogue, or a repeated pattern would be suitable. First, the child reads the story. The teacher comments approvingly and then says something like, "But I want you to read it fast and make it sound like the animals are really talking. Let me show you." The teacher then reads the story with good expression. Merely exposing the child to a model of fluent reading is not enough, however. The lesson cannot be counted a success until the child is able to read the story with a distinct improvement in fluency. So next, the child reads the story again and maybe yet another time.

Maxim 7: Instruction should involve coaching. Coaching involves observing and helping students while they attempt to perform a task. The teacher directs students to particular aspects of the task, reminds them about a part of the task they may have overlooked, provides hints and feedback, and designs and sequences new tasks aimed at bringing the students' performance closer to expert performance. Coaching has the flavor of collaboration rather than evaluation. It boosts students' confidence as they go through the frustrating early stages of skill development. It is the best way to help those who are expert or near expert refine their techniques.

Coaching is at the heart of Reading Recovery procedures, which is only to be expected from a program that features whole, authentic tasks. For a specific illustration, we will summarize some of the coaching Reading Recovery teachers do while a child is reading. When a child comes to a problem word in a text, the teacher tries to give a prompt that will help the child get the problem word, and more important, will help the child gain control over generally useful strategies for attacking words.

Reading Recovery teachers seldom simply tell a child a problem word. Instead, they may suggest the word in a question: "Could it be *sea*?" The idea behind using a question is to encourage the child to check the suggestion against the printed word. If children are simply given problems words, they typically plunge forward, having learned little or nothing. Of course, for this strategy to work well, sometimes the teacher has to suggest incorrect words, usually semantically plausible ones. Imagine that

the word *sea* appears on a page displaying a picture of a small boat on a large body of water. In this context, the teacher might say, "Could it be *lake*?" The child may say no and, with the clue that the problem word refers to a body of water, may now be able to say *sea*. However, if the child agrees that the problem word could be *lake*, the teacher ought to point to the water in the picture and say, "Yes, this could be a lake." Then, the teacher ought to point to the word and add, "But does this look like *lake*?" At this stage, the teacher sometimes may suggest other incorrect words, such as *ocean* and *river*, or he or she can say, "Could it be *sea*?" Notice that this routine encourages close analysis of the print, attention to meaning, and cross-checking of print information and information available about meaning.

Alternatively, depending upon the child and the circumstance, the teacher may reread the phrase leading up to the word and then provide its first sound. Or, the teacher may say, "Get your mouth ready to say the first sound." Or, if the child has good control of individual letter-to-sound relationships, but is not yet able to do much independent analysis of words in text, the teacher may write the word letter by letter on the chalkboard (Clay, 1985), getting the child to articulate the sound for the first letter, the first two letters, and so on, until a word that fits the context comes into his or her mind: for instance *c, cr, cra, crash*.

Still another strategy is to encourage the child to think of words he or she knows that have spellings and sound patterns similar to the problem word, employing questions such as these: "Do you know a word that looks like that?" "Think of a word that starts like that." "Can you think of a word that ends like that?" To illustrate, suppose a child stops at *then*. The teacher might say, "You know *the*, don't you? If this is *the* (displays *the* in magnetic letters), what is this (points to *then*)?" Or, more indirectly, the teacher might ask, "Do you know a word that begins like that (indicating *then*)?" If the child is unable to think of a word, the teacher might ask him or her to reread a line containing *the*, and then say, "You just read a word that looks like this (indicating *then*). Can you find it?" And once the child has, "Now can you get this one (indicating *then*)?"

Once the child has solved a problem word, fairly often a Reading Recovery teacher will not indicate whether the word is right or wrong. Instead, the teacher will ask, "Do you have it right now?" or "Does it look right and sound right?" Questions such as these promote cross-checking and self-monitoring.

Maxim 8: Instruction should involve scaffolding. Scaffolding is closely related to the maxims of developmental progression and coaching. Scaffolding means providing teacher support and regulating task difficulty so that the level of challenge is optimum for growth toward expertise. Effective scaffolding thus requires sensitivity to the students' skill level and developmental progress. Appropriate scaffolding entails the ability to provide just the right amount of coaching or support so that students will succeed at performing the target task, but only by stretching their competence. With too little challenge, students will not achieve maximum growth; with too much challenge, they will become discouraged and dependent.

The scaffolding maxim can be illustrated by the means Reading Recovery teachers use to regulate the difficulty of the books children read. For the child whose text reading level is very low, appropriate first books are ones with a regular, predictable pattern, ones in which the pictures illustrate most of the ideas, and ones containing mostly easy, frequent words. The following excerpt from *My Home* by Joy Cowley (1986. pp. 2-4) is one example of a story for beginners. The story is also lavishly illustrated.

"I like my home,"
said the spider.

"I like my home,"
said the bird.

"I like my home,"
said the rabbit.

Another means Reading Recovery teachers use to regulate difficulty is by varying their orientation, or introduction, to a book. The teacher's orientation can be lean if the book is likely to be easy for a

child. A richer orientation is desirable if the book is likely to be difficult. A rich orientation may include looking through the book with the child, commenting on what is significant in the pictures, and discussing the story line. The teacher will use potentially troublesome words in the oral orientation and may ask the child to locate a few of these words in the text. For instance, if *snake* is likely to be a problem word, the teacher might say, "What letter would you expect to see at the beginning of *snake*?" Assuming the child knows, the teacher would next ask, "Can you find *snake* on this page?"

Too little scaffolding and a child may flounder. Too much scaffolding and the child will not have enough productive "reading work." A lesson at just the right level of challenge affords substantial teaching opportunities. It is one of the keys to accelerated progress. Providing just the right amount of scaffolding depends upon comprehensive, up-to-date, accurate information about children's reading. In addition to informal impressions based on close observation during lessons, Reading Recovery teachers make a daily objective assessment of every child's reading level, using a procedure called the "Running Record" (Clay, 1985).

Maxim 9: Instruction should foster reflection and articulation. Over the course of instruction, external scaffolding is gradually withdrawn as an internalized model of expertise develops. In moving from other-regulation to self-regulation, reflection and articulation are important processes. Both processes help students gain consciousness of and control over basic conceptual and procedural knowledge.

Reflection involves thinking about one's own conceptual and procedural understandings and comparing them with those of an expert or another student. The goal is to develop reflective thinkers who can monitor their own performance and bring it more in line with expert performance.

Articulation refers to the verbalization of reflective thinking. It is reciprocal reflection, the sharing of knowledge and cognition with others. Articulation may include describing plans and intentions, explaining reasons underlying decisions and actions, checking perceptions, responding to the questions of others, and acknowledging frustrations and successes. The teacher's "thinking aloud" while modeling serves as a model of reflection and articulation as well as a model for the skill itself.

Behind-the-glass sessions are designed to promote reflection and articulation. While a teacher and a child work together on the lesson on one side of the glass, the rest of the trainees discuss the lesson in detail on the other side. The teacher leader prods the group with rapid-fire, Socratic-style questions about the child's behavior and what may be inferred from the behavior about the child's reading strategies, the appropriateness of the books, the pacing of the lesson, the teacher's decisions at choice points, the teacher's control of key techniques, and whether opportunities were seized or lost. Trainees can be heard to applaud the teacher who has managed to covey a "powerful example." At other times, they can be heard frankly to challenge ill-considered decisions. A discussion exemplifying articulation and reflection continues when the teacher who has taught behind the glass rejoins the group.

Teacher Education: The Maxims Ignored

The great irony of teacher education is that prospective teachers are taught in ways that are inconsistent with these maxims of effective learning and instruction. Instead of whole-to-part, prospective teachers are often prepared in an assembly-line fashion. They take discrete courses in various foundations and methods specialties. The culminating activity is an all-too-brief student teaching experience that typically bears little relationship to what students have learned in course work. Preservice teachers have little opportunity to observe or practice the whole teaching act. Yet they are expected to be able to perform this extremely complex task solo--usually without coaching, mentoring, or support--upon receiving their teaching credential.

Traditional teacher training lacks authenticity. Courses often present theories and principles that are far removed from the realities of classrooms. Any cases prospective teachers observe or tasks they engage in are likely to be contrived and to lack the complexity and richness of authentic teaching situations. Skills are taught in the abstract, decontextualized from their uses in the real world.

Prospective teachers are rarely treated to multiple perspectives, at least in a manner conducive to growth. Courses are typically taught by individual instructors with their own idiosyncratic perspectives. Much content is delivered by lecture, with little opportunity for shared viewpoints. The student teaching experience offers an opportunity for a different perspective--that of the cooperating teacher. But Doyle, (in press) cites a study by McDiarmid suggesting that student teachers are often so brainwashed by their methods courses that they are effectively inoculated against the perspective of the classroom teacher. In our experience, the opposite can also happen: Student teachers adopt the perspective of the cooperating teacher and dismiss most of what was taught in their university classes. Either way, a singular perspective dominates. Since there are seldom opportunities for discussing and learning from multiple perspectives, there is limited potential for developing cognitive flexibility

Current teacher education typically ignores the developmental progression of stages from novice to expert teachers. Few would claim that teacher certification marks the attainment of truly expert status. Rather, it is recognized that teachers need years of classroom experience to become experts. One reason is that preservice teacher education tends to be heavy on the side of conceptual knowledge and light on the side of procedural knowledge. There is insufficient opportunity for prospective teachers to develop the knowledge and the executive control that characterize true expertise.

Instead of an action orientation, preservice teacher education is largely passive. Students are told how to teach rather than shown and coached how to teach. They receive plenty of preaching but little practice. As a result, their knowledge remains inert and inaccessible.

Teacher education offers several opportunities for modeling. The first possibility is the way the university professors conduct their courses. Unfortunately, many professors are not living examples of the theories and methods they advocate. For example, a professor may deliver a boring lecture about the limitations of lecturing and about alternatives to lecturing!

A second modeling opportunity is for professors to model how to do the particular skills they are teaching. For example, in a unit on measurement and evaluation, the professor could model how to go about constructing a teacher-made test. It is our impression that this type of modeling is rarely done in foundations courses. Modeling does happen in methods courses, we hope, but even in methods courses, the modeling is probably not ideal. Instructors probably do not "think aloud" about the planning, problem solving, monitoring, and evaluation involved in performing the skill. As a result, the cognition involved in the skill remains invisible to students.

A third potential model is the cooperating teacher for the student teaching experience. The cooperating teacher may be a very wonderful model. On the other hand, he or she may not be a very expert teacher. Or, the cooperating teacher may not be willing or able to be introspective about his or her teaching for the benefit of the student.

Prospective teachers infrequently receive coaching or scaffolding. In education courses, feedback usually comes in the form of summative evaluations of completed products, with negligible opportunity for improvement or growth. Fortunate students may receive some coaching from their cooperating teachers or supervisors during student teaching, but the coaching often will be too little, too late.

Preservice teachers see little modeling of reflection or articulation by their instructors. It is rare for professors to talk about their own teaching. For students, articulation is largely limited to writing papers and exams used for evaluation purposes. Students may receive little, if any, feedback about their reflections and articulations. By limiting reflection and articulation, teacher education fails to foster the development of an internalized model of expertise.

Ironically, therefore, typical teacher education violates the very maxims of learning and instruction that should be its foundation. In our opinion, teacher education fails to prepare teachers as well as it might if these maxims were followed.

Applying The Maxims to Teacher Education: An Example

To illustrate on a small scale how these maxims might be applied to teacher education, we describe our own attempt to embody them in an experimental preservice education course at the University of Illinois. (We do so with all due hesitancy and appropriate qualifiers, because at the time of writing, this course has just completed its first trial semester.)

The course is part of an experimental field-based teacher education program resulting from a collaboration between the College of Education at the University of Illinois and the Urbana, Illinois, Public Schools. The program is our response to the consensus recommendation from the current educational reform movement that colleges of education should work collaboratively with school districts for both the planning and implementation of teacher education.

Essentially, the program entails the joint implementation of a full-year experience for seniors in elementary education. Students are assigned to classrooms to work under teachers for an entire academic year. In addition, students complete required methods courses in blocks taught by small teams of University faculty and Urbana teachers. Because students are concurrently assigned to classrooms, they also have the opportunity to practice what they are learning in their methods courses under the guidance of classroom teachers. The block for which we have a major responsibility is called Language and Literacy. It encompasses the domains of long-standing courses in reading, language arts, and children's literature.

Our Language and Literacy course reflects the maxims we are espousing. The course adopts a whole-to-part approach in two senses of the concept. The first is reflected in the course title; the course approaches literacy as a holistic concept, an integration of various language abilities, rather than as the sum of reading, writing, speaking, and listening skills. Second, students observe and perform whole acts of teaching from the very beginning of the course. For example, they teach a guided reading lesson beginning about the third week of the semester. As the course proceeds, they refine the subskills within each of these whole teaching acts.

The course highlights authenticity in several ways as well. Four teachers are heavily involved in the planning and teaching of the course. Instruction features professional-quality videotapes of real teaching situations. Students are in classrooms as they take the course, participating in authentic teaching episodes.

Multiple perspectives are a foregone conclusion in a team-taught course, especially one composed of both university professors and classroom teachers! In addition, content issues are discussed from various theoretical perspectives, and students are encouraged to share their own developing viewpoints. Finally, students observe multiple approaches to teaching assignments as they observe each other's videotaped lessons, as will be discussed below.

Sensitivity to developmental progression is evident primarily in the type of coaching and scaffolding provided. For example, students teach several reading lessons throughout the semester. As the semester progresses, the preparation and support for, and feedback about, the lessons changes as required by the developmental level of individual students.

An action orientation is a hallmark of our Language and Literacy course. We have already described the students' active participation in classrooms and in actual teaching. Students are also actively involved in observing and coaching each other. Students videotape each other teaching. These videotapes then become the focus of three-hour discussion sessions that takes place each Friday.

Modeling is accomplished in several ways. First, the course itself exemplifies the very maxims we are attempting to impart. Second, course instructors (especially the classroom teachers), as well as the cooperating teachers, model specific skills throughout the semester. Third, as previously mentioned, we use several videotapes of lessons by expert teachers to model exemplary teaching practices. Finally, students observe each other as models (in varying stages of development, of course) during the Friday videotape-discussion sessions.

Coaching comes from several sources. Most coaching is done by course instructors before and after classroom teaching assignments. However, as the semester progresses and their expertise develops, the students increasingly assume responsibility for coaching each other. Most coaching takes place around the students' videotaped lessons. Lesson segments are targeted for analysis and discussion by the whole class.

The course features ample opportunities for reflection and articulation. Students keep a "dialogue journal" (a written exchange between individual students and the instructors). The journal not only provides a medium for reflection and articulation but also enables students to try out one type of writing experience we discuss in the course. And, of course, the Friday discussion sessions are devoted to reflection and articulation about videotaped student lessons.

Our Language and Literacy course is a modest beginning, but we believe it exemplifies, in some crude form at least, the maxims of learning and instruction that we maintain should be the very foundation of all teacher education.

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Authors' Note

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