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Elements of effective instruction: An analysis of five models

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Elements of effective instruction: An analysis of five models

Abstract

Concern about effective instruction is nothing new. Confucius (c. 550-478 B.C.) said: 3 . When a superior man knows the causes which make instruction successful, and those which make it of no effect, he can become a teacher of others. Thus in his teaching, he leads and does not drag; he strengthens and does not discourage; he opens the way but does not conduct to the end without the learner's own efforts. Leading and not dragging produces harmony. Strengthening and not discouraging makes attainment easy. Opening the way and not conducting to the end makes the learner thoughtful. He who produces such harmony, easy attainment, and thoughtfulness may be pronounced a skillful teacher. (U.S. Office of Education, 1986, p.18)

ELEMENTS OF EFFECTIVE INSTRUCTION:

AN ANALYSIS OF FIVE MODELS

A Research Paper

Submitted to

The Department of Curriculum and Instruction

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of the Requirements for the Degree

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by

Susan Wulf Osvald

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Entitled: Elements of Effective Instruction:
An Analysis of Five Models

has been approved as meeting the research paper
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Elements of Effective Instruction:

An Analysis of Five Models

Concern about effective instruction is nothing new. Confucius (c. 550-478 B.C.) said:

When a superior man knows the causes which make instruction successful, and those which make it of no effect, he can become a teacher of others. Thus in his teaching, he leads and does not drag; he strengthens and does not discourage; he opens the way but does not conduct to the end without the learner's own efforts. Leading and not dragging produces harmony. Strengthening and not discouraging makes attainment easy. Opening the way and not conducting to the end makes the learner thoughtful. He who produces such harmony, easy attainment, and thoughtfulness may be pronounced a skillful teacher. (U.S. Office of Education, 1986, p.18)

The release of A Nation at Risk: The Imperative for Educational Reform, the report of the National Commission on Excellence in Education, in 1983, created more interest in educational excellence than any event since the launching of Sputnik I. Two messages which

come from the report are that "mediocrity, not excellence, is the norm in American education" and "we don't have to put up with this situation" (Goldberg & Harvey, 1983, p. 15).

The increased interest in educational excellence due to the release of "A Nation at Risk" inspired a great deal of research devoted to numerous factors believed to have an influence on educational excellence. Much of the research dealt specifically with the teacher's role in providing effective instruction. In 1960, Mitzel (cited in Ryan, 1986) defined classes of teacher effectiveness criteria:

presage criteria (teacher characteristics and teacher competencies), process criteria (teacher performance variables), and product criteria (the results teachers get or the progress of pupils toward some educational goal). . . . He also added a fourth class of variables related to teacher effectiveness which he called "environmental" variables (later to be called "context" variables). They included a variety of situational factors that affect pupil learning but are not controlled by the teacher. (p. 10)

Studies have been conducted to determine the effects of criteria in all of Mitzel's classes. The results of this research are of interest to colleges of education and their students, school administrators and board members, students and their parents, taxpayers, legislators, and others concerned about educational excellence. The results should be of most interest, however, to teachers; those practicing professionals who are intent on teaching as well as possible.

A synthesis of research about teaching and learning is provided in What Works: Research About Teaching and Learning (U.S. Department of Education, 1986). Information about effective teachers and instruction includes the following: (a) Successful teachers work at involving parents because parental involvement helps children learn more effectively. (b) Good teachers of reading prepare students for the story to be read and ask probing questions about the story after it is read. (c) "Teachers who set and communicate high expectations to all their students obtain greater academic performance from those students than teachers who set low expectations" (p. 32). (d) Teachers who are effective classroom managers have more time to teach, resulting in increased student

achievement. (e) Effective teachers ask probing, thought-provoking questions and wait longer for answers. (f) The use of manipulatives in math instruction increases effectiveness. (g) Student achievement increases when well-designed homework is regularly assigned and conscientiously completed. Interested teachers could implement one or more of these suggestions independently and probably find their instructional effectiveness somewhat enhanced.

Other methods of improving teacher effectiveness are more complex. Research has resulted in a number of teacher effectiveness "models", descriptions of model teachers, instructional programs, and evaluation instruments. Weil and Joyce (1978) say that a model of teaching:

consists of guidelines for designing educational activities and environments. It specifies ways of teaching and learning that are intended to achieve certain kinds of goals. A model includes a rationale, a theory that justifies it and describes what it is good for and why; the rationale may be accompanied by empirical evidence that it "works." (p. 2)

The Madeline Hunter model is very popular, but, unfortunately, misused in some instances. Some states have mandated training in the Madeline Hunter model. In an interview with Ron Brandt, Executive Editor of Educational Leadership, Tom McGreal said that every teacher should be able to demonstrate basic teaching skills. McGreal differentiated between the effective teaching research and the Hunter material:

The effects research is a combination of correlational and experimental studies tying individual teacher behaviors to student outcomes. The Hunter material and the programs derived from it are learning theory-based, and . . . directed at the total teaching act. . . . There is little evidence at this point to link the Hunter training to student learning. (Brandt, 1987, p.21)

It can therefore be noted that the Hunter model provides a useful guide for one form of teaching, but it cannot be regarded as the only acceptable system. Hunter has given labels to established principles of educational psychology to help teachers apply them deliberately (Slavin, 1987). It is inappropriate to convert the components into a rating scale and attempt

to evaluate teacher effectiveness from this narrow perspective. That was not the intent of the design.

Statement of the Problem

What do good teachers do that makes them more effective than other teachers? "There is a growing trend toward the construction of patterns of teaching (sequential phases of activity) drawn inductively from effective individual teaching behaviors identified through a series of correlational and experimental studies" (Murphy, Weil, McGreal, 1986, p. 83). This review of the literature examines models of effective instruction and identifies elements which have been shown to be components of effective instruction. The product of this study is a presentation of five models and a comparison of the elements of these models. It is intended to be of use to elementary teachers interested in enhancing their instructional effectiveness.

Scope of the Review

Method of Analysis

Researchers have studied effective teachers to identify characteristics associated with significant growth in student achievement. "Studies of teacher effectiveness done during the last decade have agreed

to a remarkable degree on a number of characteristics related to student learning of basic skills" (Blair, 1984, p. 138). Blair (1984) identified seven fundamentals of effective instruction: (a) useful time, (b) diagnosis, (c) direct instruction, (d) transfer of skills, (e) flexible grouping, (f) positive mind set, and (g) management.

"Naturalistic studies of relatively more and less effective teachers . . . have begun to establish a pattern of instruction that is associated with student learning. This pattern has been frequently labeled direct instruction" (Good, 1979, p. 55). "A decade of research on teaching has firmly established the effectiveness of systematic, step-by-step instruction" (Rosenshine, 1986). Several patterns of effective instruction have been established; five of these systematic, step-by-step models are the focus of this review.

The volume of literature found regarding effective instruction/teaching, instructional/teacher effectiveness, and models of instruction made it necessary to establish some boundaries for limiting the scope of this review. Effective instruction is, however, a difficult topic to limit because good

reading (or spelling or science) instruction is not necessarily the same as good language (or math or social studies) instruction. An extensive review could be done regarding effective instruction for any of these subject areas. Each subject area has unique and discrete characteristics which may make a particular model of instruction most appropriate, but in this study only models which can be generally applied were investigated.

The initial review of literature on effective instruction disclosed much information regarding classroom management. Time devoted to instruction, variously referred to as "Time on Task," "Allocated Learning Time," and "Academic Engaged Time," was another frequently occurring topic. Questioning was also often addressed individually. The plethora of material indicated that, rather than being part of a review of the literature regarding elements of effective instruction, these topics could be better addressed separately. They are, therefore, not included in this review.

Materials

Various sources were consulted to obtain information. Among them were Resources in Education

and Educational Resources Information Center (ERIC) documents. Journal articles, other research reports, and books were obtained from the University of Nebraska at Omaha and University of Northern Iowa libraries, the Iowa Network for Obtaining Resource Materials for Schools (INFORMS), Area 13 Education Agency, and University of Northern Iowa instructors. Drake and Iowa State University personnel also provided materials used.

Models of Effective Instruction

Munroe (1984) notes that "knowledge of subject matter and knowledge of effective teaching methods are without question the foremost prerequisites for excellent teaching" (p. 39). The effective teaching movement is differentiated from other recent educational reforms in that the most popular and widely used techniques are research based (Brandt, 1987, Walsh, 1984).

Effective instruction has been considered in a variety of formats. The term "model" is used throughout this review to designate any set of elements of effective instruction offered by an expert, theorist, or by research. In the literature, "teacher effectiveness" generally refers to the ability of a

classroom teacher to produce greater than expected growth on standardized achievement tests.

Five models of direct instruction were examined. The models analyzed are Explicit Teaching, Basic Practice, "Basic White Sauce," Program for Effective Teaching, and Learning Events.

Explicit Teaching--Rosenshine

Barak Rosenshine (1983, 1986) developed a model of effective instruction from a number of studies. The six "instructional functions" of explicit teaching are: (a) daily review, checking previous day's work, and reteaching (if necessary), (b) presenting new material, (c) conducting guided practice, (d) providing feedback and correctives (and recycling of instruction, if necessary), (e) conducting independent practice so that students are firm and automatic, and (f) weekly and monthly reviews.

Basic Practice Model--Weil and Murphy

The basic practice model (Murphy, Weil, & McGreal, 1986) consists of five phases of instructional activity. In each phase there are identified behaviors or skills that characterize effective performance. The phases and skills are:

1. Orientation phase--teacher establishes the goals, procedures, and content of the lesson.

2. Development phase--teacher presents information, provides model, and checks for understanding.

3. Controlled (or structured) practice phase--teacher leads group through practice examples and questions, students respond, and the teacher responds to students with feedback.

4. Guided practice phase--students practice new concept or skill as seatwork, teacher monitors.

5. Independent practice phase--students practice new skill concept as homework, teacher reviews and corrects homework .

Basic White Sauce--Hunter

Madeline Hunter has become well-known for making explicit seven elements of lesson design (Hunter, 1984, Hunter & Russell, 1977). Hunter cautions that, though considered in the lesson plan, all seven may not occur in conducting the lesson. The seven elements are:

1. Anticipatory set--teacher focuses student attention, provides brief practice on previously achieved and related learning, and develops readiness for instruction.

2. Objective and purpose--teacher informs students of what they are supposed to learn and why it is important to them.

3. Instructional input--teacher provides for the students to acquire information through "discovery, discussion, reading, listening, observing, or being told" (1984, p. 176).

4. Modeling--teacher provides examples of or demonstrates acceptable product or process.

5. Checking for understanding--teacher ascertains that students possess objective knowledge/skill and understand what it is that they are to do.

6. Guided practice--teacher supervises initial practice to assure that students are not practicing mistakes.

7. Independent practice--students develop fluency by practicing without the availability of the teacher.

PET

Program for Effective Teaching (PET) (Evans, 1982) is the model for staff development devised by the Newport News, Virginia, Public Schools. It is based on Madeline Hunter's theories, but was adapted to meet local needs. PET is suitable for all subjects and various teaching styles. At a Teacher Resource Center,

small groups of teachers are taught the components via videotapes, group work on lesson planning, and simulations. The model focuses on efficient and effective teaching behaviors observable in effective teachers. The five instructional skills which form the basis for these behaviors are:

Selecting an objective at the correct level; teaching to the objective; establishing and maintaining learner focus on the objective; monitoring the progress of the learner and making adjustments, if necessary; and using the principles of learning: motivation, retention, reinforcement, and transfer. (p. 44)

The first three components of the PET model "lesson line" relate to the anticipatory set. They are (in any order):

1. Involvement--teacher involves the student in some observable behavior.

2. Relating--teacher relates the objective to something in the student's past for maximum transfer and retention.

3. Objective--teacher states the objective.

The next four components relate to teaching to the objective. They are:

4. Explanation--teacher provides explanation through definitions or models.

5. Questions--teacher asks questions to verify understanding of the explanation.

6. Activity--teacher provides and monitors guided activity and, if a high degree of success is observed, switches the student to independent practice.

7. Response--teacher responds to the learner in terms which provide reinforcement and specific knowledge about performance.

The two components of closure are:

8. Involvement--teacher involves the student to promote positive transfer.

9. Summation--teacher focuses the learner's attention on the objective one final time, taking advantage of the motivation which is frequently high at the end of a lesson.

Events of Instruction--Gagne'

Robert Gagne' identified nine events of instruction and the conditions of learning implied for each of five types of learning: intellectual skill, cognitive strategy, information, attitude, and motor skill. Not all of the events invariably occur and the order may vary depending upon the objective. The

instructional events and teacher behaviors appropriate for fostering intellectual skills, according to Gagne' and Briggs (1979), are:

1. Gaining attention--introduce stimulus change;
 2. Informing the learner of objective--provide description and example of the performance to be expected;
 3. Stimulating recall of prerequisite learning--stimulate recall of subordinate concepts and rules;
 4. Presenting the stimulus material--present examples of concept or rule;
 5. Providing learning guidance--provide verbal cues to proper combining sequence;
 6. Eliciting the performance--ask learner to apply rule or concept to new examples;
 7. Providing feedback about performance correctness--confirm correctness of rule or concept application;
 8. Assessing performance--learner demonstrates application of concept or rule; [and]
 9. Enhancing retention and transfer--provide spaced reviews including a variety of examples.
- (p. 166).

Comparison of Elements of Effective Teaching Models

Although terminology differs, the models contain similar elements. Table 1 shows the occurrence of the separate elements within the models.

Table 1

	<u>Elements of Instruction in Models</u>				
	Gagne'	Hunter	PET	Explicit Teaching	Basic Practice
Daily review				X	
Anticipatory set	X	X	X		X
Objective/purpose	X	X	X		X
Link to learned	X	X	X		
Instructional input	X	X	X	X	X
Modeling	X	X	X		X
Structured practice					X
Check understanding	X	X	X		X
Guided practice		X	X	X	X
Evaluation/feedback		X	X	X	X
Closure			X		
Independent practice	X	X	X	X	X
Evaluation/feedback	X		X		X
Periodic review	X			X	

These five models have a number of similar points, but different areas of emphasis. The models of Gagne' and Hunter need to be considered when planning the lesson as well as in lesson delivery. In neither would all elements necessarily occur in all lessons. The elimination of an element should be a professional decision, made by the teacher, based on knowledge of the students and the objective. Emphasis is on the delivery of instruction in the PET model and on review and practice in Rosenshine's Explicit Teaching model. As the name implies, emphasis is on student practice in the Basic Practice model.

In the classroom, attracting students' attention is a prerequisite for learning. This important element is addressed in gaining attention by Gagne', anticipatory set by Hunter and PET, and the orientation phase in the Basic Practice model.

Sequentially, stating the objective comes next. Gagne', Hunter, PET, and the Basic Practice model all include this element.

The need for relating to, or building upon, previous learning in order for new learning to take place is clearly addressed in some models. Gagne' calls it "stimulating recall of previous learning," it

is incorporated in "anticipatory set" by Hunter and PET.

Presentation of the new material receives varying emphasis in the models. Hunter focuses three elements--instructional input, modeling, and checking for understanding. The development phase of the Basic Practice model includes presentation of new material, modeling, and checking for understanding. Explanation and questioning are the two elements of PET directed at presentation of new material. Gagne' focuses two elements on instruction--presenting material and learning guidance. Presenting new material is the only element of Explicit Teaching addressing instruction.

Only Gagne' fails to specifically refer to "practice" in some element of instruction. The Basic Practice model devotes three phases to practice--controlled practice, guided practice, and independent practice. Guided practice and independent practice are referred to in the Hunter, PET, and Explicit Teaching models. The Gagne' element of eliciting performance requires the same type of student activity as independent practice does in the other models.

The Explicit Teaching model calls for providing feedback and correctives, response is the terminology

used in PET. Gagne' suggests two elements--assessing performance and providing feedback. Presumably assessing performance is necessary for any meaningful feedback stipulated in the other models.

The PET model includes two elements addressing closure--involvement to promote transfer and summation to focus attention on the objective a final time. The ninth event of Gagne' promotes review to enhance retention and transfer. Retention is enhanced by daily, weekly, and monthly reviews called for in Explicit Teaching. These areas are not specifically addressed in the Hunter or Basic Practice models.

Summary and Conclusions

It has been noted that "there presently exists a really delightful and vigorous array of approaches to teaching. . . . Strength in education resides in the intelligent use of this powerful variety of approaches. . ." (Joyce & Weil, 1980, p. xxiii).

"A model of teaching is not a simple fixed formula for completing a job. . . . It has to become a flexible, fluid instrument that is modified to fit different types of subject matter and that responds to students who are different from one another. (Weil & Joyce, 1978, p. 8). Others agree that "direct

instruction should not be viewed as a set of prescriptive rules. It should be seen as a conceptual orientation that values active teaching, expository learning, focused learning, and accountability" (Powell, 1978, in Good, 1979, p. 55).

With the support of these comments from noted experts, the reviewer concludes that a teacher should not expect to (nor be expected to) adopt any one model to use exclusively. It would be more appropriate to first establish a usable repertoire of models of instruction through study and practice. These models should then be implemented in one of two ways: by choosing the most appropriate model from the repertoire or by selecting, adapting, and combining elements of the established models--making modifications according to needs. The integrity of the models should be maintained by making certain that important elements are not neglected. To become more competent, the range of teaching strategies, and skill in their application, should be increased.

A Comprehensive Model for Direct Instruction

A comprehensive model combining elements of the five reviewed models would include these components (Hunter terminology [denoted by *] has been used where

applicable because of the relationship to local evaluation):

Orientation--teacher establishes the goals, procedures, and content of the lesson.

1. *Anticipatory set--teacher gains and focuses student attention, develops readiness for instruction by stimulating recall of subordinate concepts, and provides brief review and practice on previously achieved and related learning to involve the student.

2. *Objective and purpose--teacher informs students of what they are supposed to learn and why it is important to them and relates the objective to something in the students' past for maximum transfer and retention.

Development--teacher presents information, provides model and practice, and checks for understanding.

3. *Instructional input--teacher presents new material, provides for the students to acquire information through discovery, discussion, explanation, reading, listening, or observing.

4. *Modeling--teacher provides examples of concept or rule or demonstrates acceptable product or process.

5. Controlled (or structured) practice--teacher leads group through practice examples and questions, students respond, and the teacher responds to students with feedback.

6. *Checking for understanding--teacher ascertains that students possess objective knowledge/skill and understand what it is that they are to do. Teacher asks questions to verify understanding of the explanation, solicits explanations or demonstrations from students, and provides learning guidance.

Guided practice--teacher provides and monitors guided practice.

7. *Guided practice--students practice new concept or skill as seatwork, teacher supervises initial practice to assure that students are not practicing mistakes.

8. Response--teacher responds to the learner in terms which provide reinforcement and specific knowledge about performance, providing feedback and correctives (and recycling of instruction, if necessary).

Closure--teacher provides for summary of learning.

9. Summation--teacher focuses the learner's attention on the objective one final time.

Independent practice--teacher elicits the performance.

10. *Independent practice--teacher provides independent practice so that skills become firm and automatic, students develop fluency by practicing without the availability of the teacher and by applying learning to new examples. Students may practice new skill/concept as homework.

11. Evaluation and feedback--teacher evaluates work/homework and responds, providing feedback about performance to confirm correctness of rule or concept application.

Review

12. Daily, weekly, and monthly reviews--teacher provides spaced reviews including a variety of examples to enhance retention and transfer.

Models are helpful to teachers because they establish a good foundation for effective instruction. Research has established the effectiveness of the five models from which the elements of the comprehensive model were derived. Knowledge of the elements makes it possible for the teacher to deliberately choose

elements which best meet the needs of the students. With a repertoire of models of effective instruction, knowledge about the elements, and the confidence to select a model or elements from various models to meet student needs most effectively, the teacher is ready to teach effectively and to improve instructional effectiveness throughout his/her career.

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