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**PERSPECTIVES ON CHANGE AND CHANGE PROCESSES:  
TEACHING AND LEARNING AS VIEWED THROUGH  
COMMUNICATION ELEMENTS AND  
CHANGE PROCESSES**

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**Perspectives on Change and Change Processes:  
Teaching and Learning as Viewed Through Communication Elements and Change Processes<sup>1</sup>**

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The underlying conceptual bases for the ideas presented here are quite simple: 1) learning and change are closely related, and 2) teaching and communication are closely linked. The theory and practice of communication and of change are at the heart of any model of teaching/learning. Knowledge of communication and change should guide curriculum development, the improvement of instruction, and resolution of problems and issues. Further, since there are substantive bodies of research and of practice or craft knowledge pertaining to both communication and change, attention to these dimensions could remove some of the mysticism that often surrounds teaching, learning, curriculum, and instruction. Change is a positive process.

When a person learns something, change occurs: That is, the person changes. Change and change models have a major place in the study of human learning. Teaching is a formal process of guiding learning activity; when teaching and learning occur between two or more people, then teaching is a form of communication. (Self-teaching is also a form of communication—intrapersonal communication.) These propositions are true generically: for adults, for children, for any formal teaching/learning situation.

Formal learning often occurs within an organizational milieu frequently called "school." In the school or classroom setting, teaching or instruction (communication) and learning (change) are intertwined inexorably in the teaching/learning process. The activities or processes of teaching and learning are linked logically to both communication and change theories and processes. (See Figure 1) The basic components of this argument are evident in the following loose syllogistic format:

1. When a person learns something, there is change (a change occurs).
2. As part of the learning process, teaching is communication; communication with a purpose of instruction is teaching. Self-teaching (e.g., reflection, introspection) is intrapersonal communication.
3. Teaching and communication are connected conceptually. Learning and change are connected conceptually.
4. Teaching and learning are complementary and connected: Communication and change are complementary and connected.
5. Teaching/learning processes are linked to communication/change processes.

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<sup>1</sup> By C. M. Achilles, Professor, Educational Leadership. This paper traces the development of a model that has been used in various forms in evaluation, in planning, and in curriculum and materials development. Its purpose is to evoke comment and criticism so the model can be refined. (Presented 6/86, 11/86. Revised 4/97, 4/99).

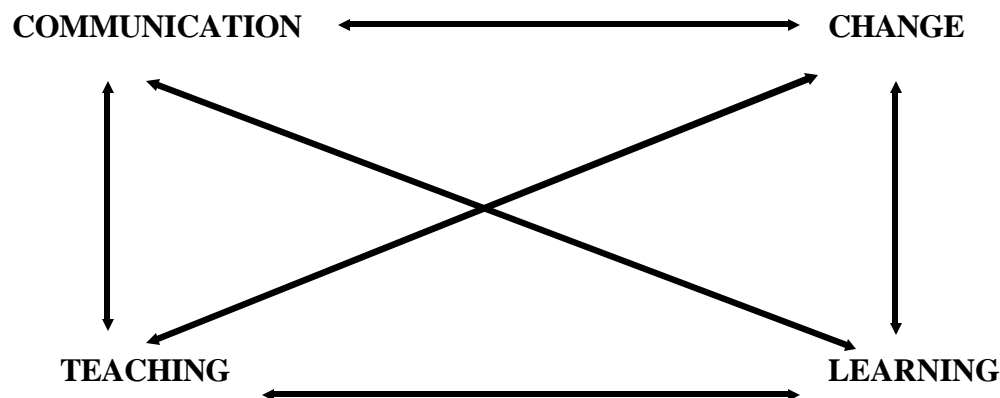


Figure 1. Suggested Interrelationships among Communication, Change, Teaching, and Learning.

The generally accepted model for communication in its simplest form consists of four primary elements plus the three processes of encoding, decoding and feedback. The four primary elements of communication include: 1) a message, 2) a sender or transmitter, 3) a medium or channel, and 4) a receiver or audience. Relationships and emphases among these four elements change depending upon key variables associated with each element, as well as upon the purpose of the particular communication.

The considerable research on both communication and change has provided substantive bodies of knowledge in each field. Results of that research should guide educational processes. The generally scientific research on change and on communication might help erase some skepticism surrounding the inconclusive results of research on teaching and learning.

### **The Change Process**

Different theorists and researchers have identified similar elements of the change process. Unfortunately, each has called similar steps by different names. For example, Rogers (1962) named five steps; Guba and Clark posited the RDDA framework: Research/Development/Dissemination/Adoption. Brickell (1961) named three steps; Lee (1964) noted six. Rogers and Shoemaker (1971) specified three steps, (Knowledge, Persuasion and Decision, Confirmation). In the Rand Studies (1974-78) Berman and McLaughlin called their three stages Initiation, Implementation and Incorporation. Rogers and Shoemaker (1983) moved to a five-stage model: Knowledge, Persuasion, Decision, Implementation and Confirmation. Achilles and Norman (1974) conceptualized a three-step change process related to communication: Dissemination, Demonstration, and Diffusion. Analysis of the content of the differently named elements suggests about three generic stages that "catch up" the meanings of the various authors. One portrayal of some of these ideas is in Figure 2 where the stages are simply designated I, II, and III to avoid semantic issues. (See also Hughes & Achilles, 1971, and Yankelovich, 1991.)

Level or Stage of Change	Rogers (1962)	Rogers & Shoemaker (1983)	Berman & McLaughlin Rand (1974-78)	Achilles & Norman (1974)	Yankelovich (1991)
I	Awareness/ Interest	Knowledge	Initiation	Dissemination	Consciousness Raising
II	Evaluation Trial	Persuasion/ Decision	Implementation	Demonstration	Working Through
III	Adoption or Use	Implementation Confirmation	Incorporation	Diffusion	Resolution

Figure 2. Similarity of Researchers' Disparate Designations of Change Process Elements Collapsed into Three Generic Stages.

### Communication Processes

Communication has generated considerable theory and research. The literature shows remarkable consistency in descriptions of the communication process. The communication elements include a message, a medium or channel, a transmitter or sender, and an audience or receiver; three important processes are feedback, encoding, and decoding. The relatively simple communication model offers each of its elements as a potential variable for study. (See Figure 3).

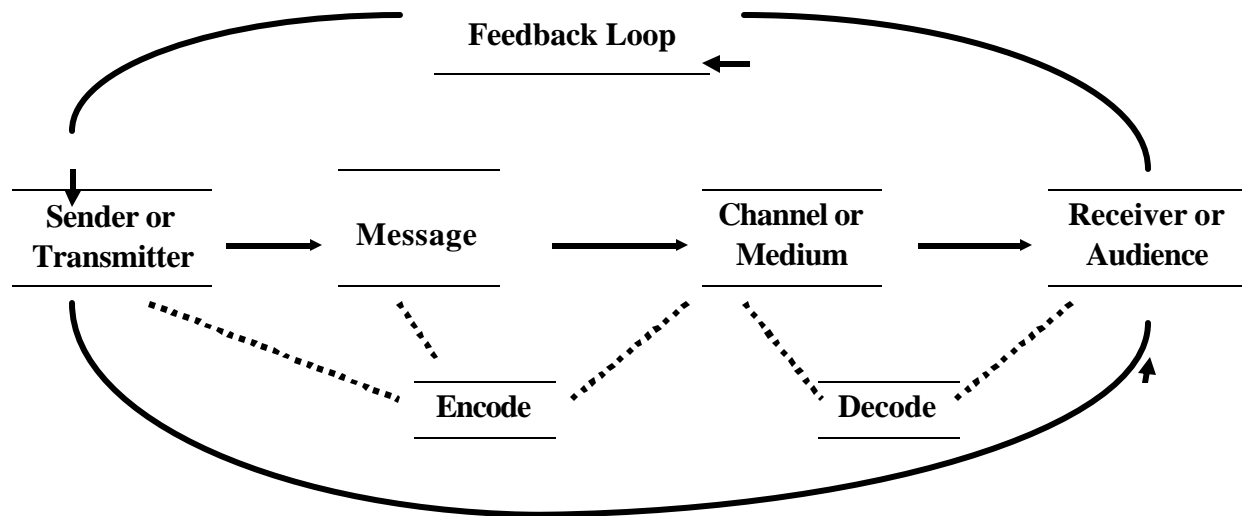


Figure 3. Basic Elements and Processes Involved in Communication.

## Communication and Teaching—Change and Learning

Models of communication and of change are important to teaching, especially if some change of behavior (or gain in knowledge, or transfer of skill) is attributed to teaching. Teaching is a conscious act of communicating for a purpose—often a predetermined purpose—where the purpose is instruction or learning. This can be emphasized by connecting the models of communication and of change into the teaching and learning processes. (Figure 4). Consider the following.

The three-level model of change (Figure 2) can also represent a basic conceptualization for learning. The following explanation may help. If a learner is going through a change process—and learning is change—then (using Roger's, 1962, steps) the first thing the learner must do is become aware of and interested in something to stimulate the change. The learner gains knowledge or conceptual control: a cognitive step. Next the learner assesses the concept and tries it or tests it on a limited basis. Considerable affect is involved at this level. (Is it right for me? Do I like this?) If the change is compatible with the learner's goals, the learner may accept and use it as part of, or all of, new and regular behavior (conative or psychomotor). Other change models mentioned previously or shown in Figure 2 could have been used in this example equally well.

In analyzing teaching and learning this way, an effective instructor can structure lessons, experiences, etc. to help the learner move from awareness (cognitive) to adoption/adaptation or use (or institutionalization). The teacher plans instruction using a change and communication model as a basis. An education leader helps create a better situation or may resolve a problem or issue by working through this three-step process.

The ideas of a) communication as teaching and b) change as learning are theoretically and conceptually related. The intervening variable(s) created by variations in the mode(s) of the communication process help explain one role of the teacher in learning, and of the leader in creating better situations (change). Figure 4 presents these ideas in outline form.

Next, relate the idea of communication-with-purpose (teaching) to the change (learning) model. Consider the matrix shown as Figure 5. Note that the purpose of the model is change, and that the purpose is expressed relationally by the stages of the change process (I, II, III). Figure 5 juxtaposes change process levels or stages with elements of communication to derive a basic framework for a Teaching/Learning Matrix. A person seeking change in the status quo can develop an operational plan using this matrix.

Communication channels will change depending upon the message to be communicated, the audience, and the intended purpose of the communication (change stage I, II, or III). For awareness, a general and one-way communication process can be used efficiently (perhaps even effectively), but little or no change of behavior will occur at the awareness level. At later stages of the change process (such as stage III) the use of two-way communication and one-to-one interactions ("coaching") or peer support will facilitate change in behavior. These ideas and an expanded model appear in Figure 6.

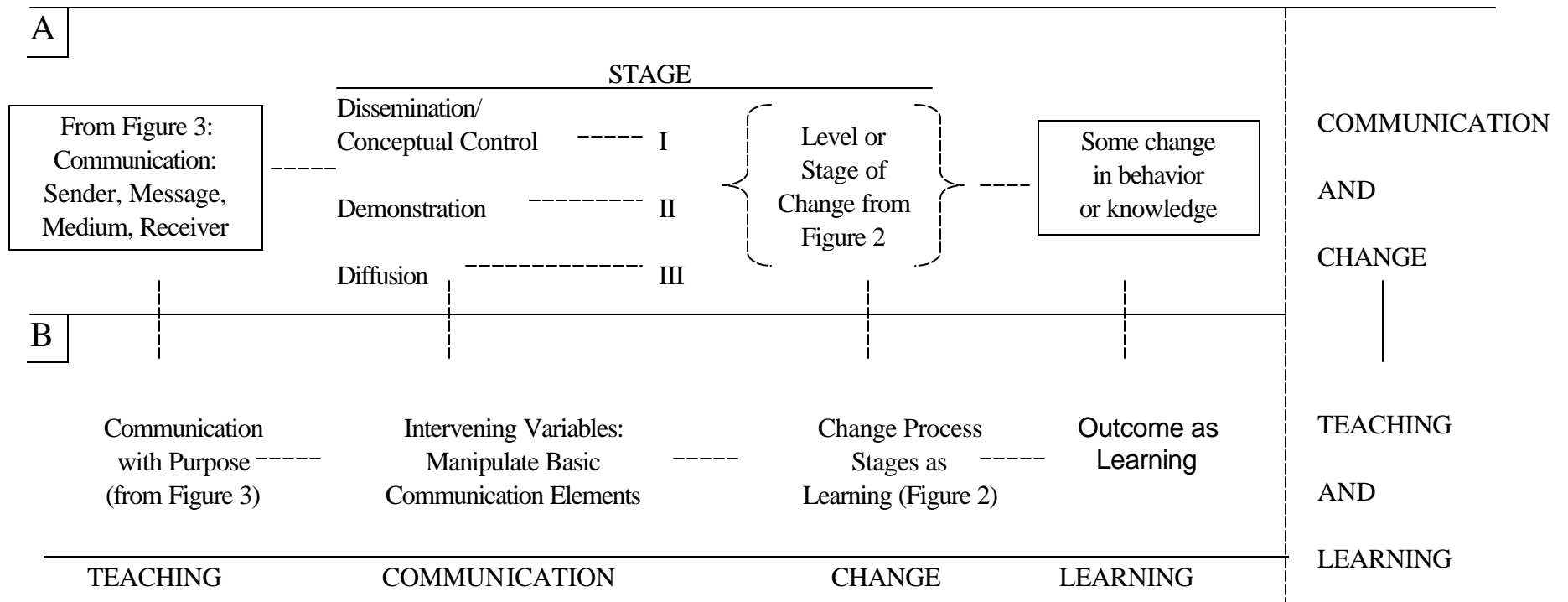


Figure 4.. Portrayal of conceptual link of communication as teaching with change as learning.

The top and bottom portions of the model (A and B) are essentially synonymous. (See also Figure 1. )

Communication and Change Connections					Orientation
1	2	3	4	5	6
State of Change Purpose	Message	Facilitators/ Method of Delivery	Channels Processes or Interventions	Audiences or Target (Receivers)	Stages of Motivation and Effort
<u>Awareness Interest</u> (Initiation) Mobilization, Knowledge Conceptual control Dissemination			One-Way communication (dissemination)	Large groups. General audience	Recognition and Seeking Exploration
<u>Evaluation, Trial</u> (Implementation) Persuasion and Decision, Skill Building, Demonstration, Linkage			Two-way communication, but to groups (demonstration) Q&A Observation	Small groups, Specific groups, Targeted (job alike) Individual	Design, Analysis and Application
<u>Adoption or Adaptation</u> (Incorporation) Confirmation, Skill Transfer, Diffusion, Use			One-to-one and ‘hands on’ (diffusion, coaching) Role play		Advocacy and Renewal

Figure 5. Communication and change matrix relating communication theory and change process (Columns 1-5) as a basis for planning change activity. The rationale or orientation for change is suggested in Column 6. Terms in ( ) in Column 1 are from Rand (Berman & McLaughlin); terms underlined are from Rogers (1962); other terminology is Rogers and Shoemaker (1971). The basic model from Achilles and Norman (1974) describes stages of change process and relates them to intervention or communication (strategies and techniques). For each change stage there must be attention to selecting audiences and matching them with channels, processes or interventions, and purposes. Emphasis on various communication elements changes as efforts move from awareness (simple recognition and spread of information) through affective levels, and on to adoption (advocacy).

BASIC ELEMENTS OF COMMUNICATION				
Purposes (Change Stages from Figure 2)	Transmitter		Medium	Audience
	or Sender	Message	or Channel	or Receiver
I				
II				
III				

Figure 6. Preliminary Conceptualization of Relationships of Change Process Stages and Elements of Communication.

Similarities in several important change theories and studies (as shown in Figure 2) are noted in the "change stages" or purpose column of Figure 6. Figure 6 also includes column 6 suggesting the orientation or motivation for change.

Some elements of instruction as put forth by current people in the field help to validate the model. A teacher can plan appropriate modes of instruction and sets of methodologies or instructional strategies to "flesh out" this matrix. A person who accepts the instructional motifs suggested by Madeline Hunter, for example, can blend those steps into a structured instructional plan using the communication/change matrix (see the bottom row of Figure 7). Figure 7 expands the communication/change model to key activities to create the desired change.

Figure 7 presents the model in its furthest stage of development at the current time (4/99). The model combines change and communication elements into a general and versatile framework that may be used to design instructional units or instructional processes. The model describes relationships among communication, change, teaching and learning. This paper attempts to clarify the processes leading up to the development of the model as shown in Figure 7. Appendix A shows the model as a basis for planning a continuous model of personal and professional growth.

### Change Process Levels (From Column 1 in Figures 2 and 5)

Activity	Change Process Levels and Descriptions			
	I – Initiation	II – Implementation	III – Incorporation	IV – Institutionalization
Purpose	Understanding. Conceptual Control.	Skill Building. Expanded Knowledge Base	Transfer of Skill and Knowledge.	Application of Skills and Knowledge. Relationships.
Relation to Change	Awareness/Interest; Initiation. Dissemination.	Trial/Evaluation; Implementation. Demonstration.	Use/Adoption; Incorporation. Diffusion.	Institutionalization and Renewal.
Method(s)	Lecture, Reading. Some Question & Answer (Q&A). Didactic. One-Way Communication.	Demonstration. Group Work. Discussion. Critique. Q&A. Two-Way Communication. Case Studies; Case Record.	Practice with Feedback. Simulation; Role Play. Involvement. Q&A. Coaching; Counseling. Develop "Action Plan."	Practice with Feedback. Synthesis and Application. Counseling. Consulting. Self Motivation.
Targeted Audience	Undefined; Uncertain.	General Definition.	Specific Definition.	Precisely Defined..
Mode(s)	Large Group. Individual.	Small Group. Individual.	Small Group. Mostly One-on-One. Individual.	Pairs, Teams, Coaching. Individual Work. Peers.
Assessment Strategies	Paper-Pencil Tests. Memory.	Oral & Written Test Processes. Demonstration.	Observe & Critique. "Paragraph Analyses." Demo./Discussion.	Discuss/Refine. Informal Processes. Elaborate Design.
Learning Style(s)	Cognitive; Print- Oriented.	Oral/Aural.	Interactive/Motor.	Combined (several).
General Relation to M. Hunter	Instructional Input.	Instructional Input. Modeling.	Check Understanding. Guided Practice.	Independent Practice Self Improvement.

Figure 7. A Suggested Model to Guide Development of Instructional Modules or Training Programs, and To Plan The Movement To Resolution (Yankelovich, 1991) and To a Demonstrable Change.

## **In Conclusion**

The full model (Figure 7) has been used as a framework upon which to build instructional modules. Those modules have gone through several field tests and participants in the model-guided instructional modules have learned as measured by pre- and post-tests. Participants have provided positive, qualitative feedback that the instructional processes accommodated both the acquisition of knowledge and the development of skills. Appendix A is an example of using the model to plan administrator preparation programs.

The model has evolved from a conceptually sound base. Therefore, it should provide a useful framework for the development of lessons, modules, units of instruction, preparation programs. The model also suggests ways that leaders might plan to move the public from initial (often uncritical) response to arriving at sound, responsible public judgment: Consciousness raising, working through, and resolution or finding common ground (Yankelovich, 1991, esp. pp. 160-179). The conceptually sound model offers one useful way to understand change, change processes, communication, and communication processes as these relate to education. One way to estimate a model's validity is to compare it to other theories. Some of those ideas (besides the change/communication elements already discussed) appear in Appendices A-E, pages F-11 through F-15.

### **Author Notes:**

In this paper I try to summarize ideas that have been of interest to me for some time, e.g., Hughes & Achilles, 1971; Achilles & Norman, 1974. They have found their way into other writings (Achilles, 1988; Achilles, Brubaker & Snyder, 1992, Achilles, Reynolds, & Achilles, 1997).

I have found the ideas useful in helping me develop preparation programs, in guiding my teaching, in designing evaluation plans, and in assessing whether or not change has occurred. The model has figured prominently in successful proposals. I have received critique on stages of this, and for their thoughtful comments I am indebted to many people, including L. Hughes, L. Hodge, W. Wolf, D. Brubaker, S. Loucks-Horsley, and others (Some of whom may have forgotten their help as it was in the form of reactions at conferences rather than as formal critiques). My debt to D. Norman is clear from our early collaboration on the model.

Some doctoral students have used this model in their dissertation research. Their results have supported the efficacy of the model (e.g., L. Allen, P. Egelson, P. Gaines, D. Harper, etc.).

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## Appendix A

### Administrator Preparation as a Continuous Program of Personal/Professional Growth through Inservice Model

<u>Learning and Change Dimensions with Sample Processes</u>					
Administration Preparation Elements	Knowledge & Conceptual Control	Transfer Skill Building	Independent of Skill	Potential Practice & Growth	Outcomes
(HOW)					
<b>A.</b> Study of Practice. Problem Identification and Analysis, Problem Posing. Separate Symptoms and Problems. Focus on Site-Specific Issues.	Self-Assessment. Reflection, Vision. Discrepancy Analysis. Site-Specific Org. & Problem Analysis. Nature of Problems.	Cognitive Apprenticeships. Specific Practica. Staff Development Plans & Results	Problem Finding & Solving Group Process  <u>SEE "C" BELOW</u>	Reflect on Results vis-a-vis the Context.	Real or Discovered Education Problems that are Administratively Mutable.
(WHAT)					
<b>B.</b> Study of Theory. Acquiring a Knowledge Base and Skills for Problem Solving and Improvement of Practice. Designing Improvement Strategies.	Reading; Lecture (SDI)*. Administration as Management and Leadership. Finance. Current Events.	Self-Assessment. Change Processes. Evaluation. Human Relations. Communications. Org. Development.	(as needed) Andragogy. Synergy. Continuing Inservice.	Practice & Feedback Necessary to Initiate & Evaluate Change & Improvement.	Armementarium
<b>C.</b> Demonstration/Use of the Knowledge Base in a Leadership Setting; Evaluation of Results. Implement and Study Change Report Results	Observation of "knowledge in practice"; Learn from real problems. Politics/Context.	Active intervention in projects, tasks, etc. Solve site-specific problem(s). School. Self-Assessments.	Mentor-Teams. Practice in New Settings. Work in Community & Evaluating & Using Data.	<u>Continuing</u> Synergistic Model; Reflection & Sharing. Move to Practice. See "D" Below.	Improved Education Practice: New Concepts of School, Culture and Professional
The <u>WHY</u> issues of Ed. Admin. rely on values, morals, ethics. These are built on humanities, liberal education, human relations, normal etiquette (e.g., one should not be mean), and informed personal/professional judgment. *SDI = Selective Dissemination of Information.					
<b>D.</b> School Commitment: A Directed & Planned Emphasis on Improvement at Site with Evaluations.	Restructure the Culture at the Setting. Work to Establish New Expectations. Develop an Organizational "Safety Net" to Allow Persons to Use New Ideas, Skills and Strategies. Emphasis on Client (Close to the Customer) and Improved Practice. School/System gains by solving of site-specific problems.				Revitalized School/System to Accommodate New Ideas & Processes.

Figure. Model of training showing three primary levels of emphasis (A,B,C) with examples. Level D shows school commitment and accommodation for new activities. Traditional preparation programs follow the BAC Theory-to-Practice format; new models might try the ABC path, moving from Practice to Theory. An administrator must know what to do, how, to do it, and most important, why something should be done (Achilles, 1988). Adapted from Achilles, Brubaker, & Snyder, H. (1990), ED 325930, and F.C. Wendel (Ed.), (1992), Reforming and restructuring education, Ch. 2, pp. 21-39, UCEA Monograph Series.

## Appendix B

### Comparison of Stages or Levels of Other Concepts/Constructs

Some comparison of stages or levels of other concepts/constructs that tend to validate the divisions suggested in the models and throughout the paper.

See Fig. 1

CHANGE Levels	COMMUNICATION Modes	KOHLBERG Moral stages	<u>TAXONOMIES (Bloom)</u> COGNITIVE	LEVELS of AFFECTIVE	INPUT
I	Dissemination Mass Communication	<u>Pre-Conventional</u> 1. Punish-obedience 2. Instrumentalist- relativist	Knowledge Comprehension	Receive (Attitude)	Cognitive
II	Demonstration Observation; Q&A.	Conventional Level 3. Interpersonal concordance. 4. Law & Order	Application Analysis	Respond Value (Belief)	Affective
III	Diffusion; Use One-to-One Coaching Adoption or Mutual Adaptation	<u>Principled Level</u> 5. Social contract legalistic 6. Universal-ethical	Synthesis Evaluation	Organization Characterization (Value)	Conative or Psychomotor

## Appendix C

### The Paideia Proposal

#### The Same Course of Study for All

	Column One	Column Two	Column Three
<b><u>Goals</u></b>	Acquisition of Organized Knowledge	Development of Intellectual Skills — Skills Of Learning	Enlarged Understanding of Ideas and Values
<b><u>Means</u></b>	by means of Didactic Instruction Lectures and Responses Textbooks And Other Aids In Three Areas Of Subject-Matter	By means of Coaching, Exercises, And Supervised Practice  in the operations of	by means of Maieutic or Socratic Questioning And Active Participation  in the
<b><u>Areas Operations and Activities</u></b>	Language, Literature, And The Fine Arts Mathematics and Natural Science History, Geography, and Social Studies	Reading, Writing Speaking, Listening Calculating, Problem-Solving Observing, Measuring, Estimating Exercising Critical Judgment	Discussion Of Books (Not Notebooks) and Other Works of Art and Involvement In Artistic Activities e.g, Music, Drama, Visual Arts
The Three Columns Do Not Correspond To Separate Courses, Nor Is One Kind Of Teaching And Learning Necessarily Confined To Any One Class			
	Knowledge About	How To Do. Competence In	Understanding

Physical Education. 12 years

Manual Arts (some)

AUXILIARY

Intro. To Work (Last 2 years)

Adler, M. J. (1982). *The Paideia proposal*. New York: MacMillan.

## Appendix D

### Categories of Problems

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1. Presented Problem Situation. The problem is given to the problem-solver. It has a known formulation, known method of solution, and known answer. (This situation prevails in schools. Given that the side of a square is four feet, what is the area?) This condition is not really a problem in the sense of professional problem analysis, for essentially it only requires implementing someone else's solutions.
  2. Discovered Problem Situation. A problem exists and it is formulated by the potential problem solver, not by someone else. It may NOT have a known formulation, known method of solution, or a known solution. It meets the conditions discussed in this chapter in that it is amenable to refinement and offers a problem-finding challenge. Why do children, at about grade 3 or 4, begin to dislike school when almost all children are initially eager to attend school? Does this American phenomenon exist in other cultures?
  3. Created Problem Situation. No problem is evident until someone creates or invents it. An artist creates a painting. An advertising artist may be given a problem — design and illustrate for an advertisement, but a fine artist starts with a blank canvas and proceeds to create a problem which the same artist then moves to solve. a teacher wants a new school initiative to promote student learning.
- 

Figure. Three Categories of Problems Showing Differences in How the Problem is Formulated (and by Whom), in the Certainty of the Method of Solution, and in the Complexity of the Projected Solution. Excerpted from Getzels, (1979; 1984).

## Appendix E

### Madeline Hunter's Seven Step Model

(Based on the theory that students learn sequentially)

Madeline Hunter recommends that the following seven steps should be a part of instructional planning for classes.

1. Anticipatory Set

The teacher prepares students for the lesson. The first five minutes of a lesson are the most critical as that is when the teacher has the greatest degree of student attention.

2. Statement of Objectives

Instructor should inform students of the objectives for a particular lesson; namely, Robert Mager's three elements of an instructional objective:

- a) State the task.
- b) Identify how the task is to be completed.
- c) Identify minimum level of competency to be achieved, if the teacher wishes to identify a minimal level.
  - Instruction in the deductive style is recommended for students experiencing academic difficulty. The teacher would state the rule and give students adequate practice until they could demonstrate mastery prior to introducing a new concept.
  - Guiding questions, prior to independent completion of an assignment, are recommended.
  - The teacher should clarify for the students how one day's instruction ties into what has academically preceded and how it will influence the next day's instruction.

3. Instructional Input

The teacher should move among the students, while they are working, providing additional reinforcement when needed.

4. Modeling

The teacher should be illustrating concepts taught, providing many and varied examples, and responding to student questions.

5. Checking for Understanding

Students should demonstrate 75-80% mastery on a concept before being taught a new concept.

6. Guided Practice

The teacher can have children working in groups of five to seven, carefully monitoring their achievement while they are working. Particular attention should be given to those children who, in the past, have demonstrated difficulty in working independently.

7. Independent Practice

Such practice should consist of only ten to fifteen minutes for a particular assignment. Independent practice should not be used as a teaching strategy; it should only be used as reinforcement for concepts that are understood by the students.