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ABSTRACT

This paper explores ways to build highly articulated, well-integrated, competency-based programs for teacher education. The development of two substantive systems in teacher education is discussed--the teacher system (the model of a teacher) and the program system. Five strategies for articulating the model of a teacher are noted: (a) the model of the school, in which the teacher is seen in relationship to his job environment and the necessary teacher competencies are developed after the model of the school is defined; (b) the generalist model; (c) the model of a particular educational approach, in which the teacher is provided with the competencies necessary for implementing a certain instructional strategy; (d) the practitioner model; and (e) the traditional program components model, in which the usual elements of teacher education are translated into competency statements and competency programs. Since the model of the teacher provides the substance of the program, program design is completed after the model is defined. In the first stage of program design, decisions about overall program strategies, the nature of the interrelationships among components, selection of component strategies, and the possible compatibility among components are made. In the second stage of program development, elements are created along with the devices that will relate the program elements to one another. (HMD)
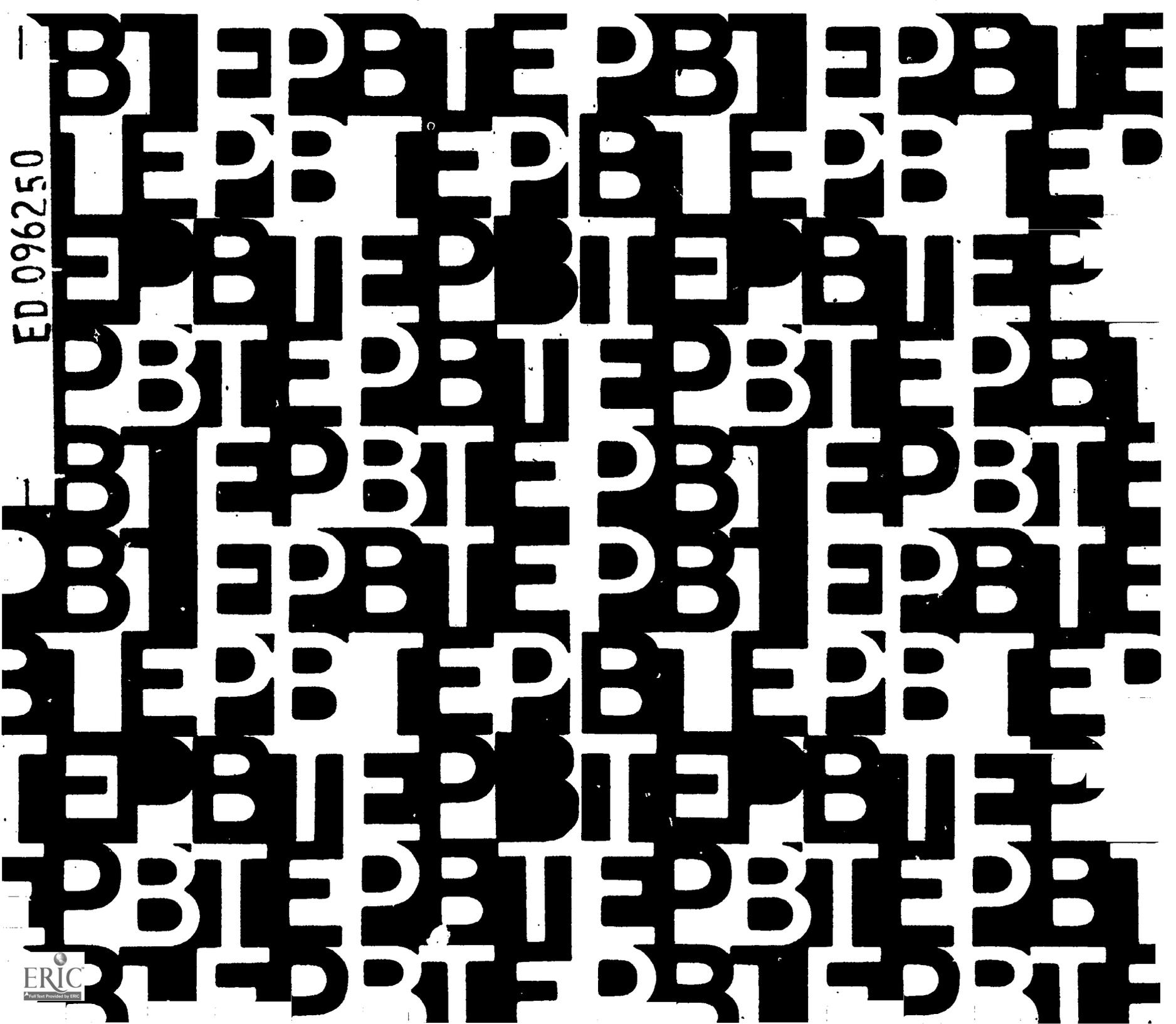
Performance-Based Teacher Education Design Alternatives:

The Concept of Unity

ED 096250

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PERFORMANCE-BASED TEACHER EDUCATION
DESIGN ALTERNATIVES:

THE CONCEPT OF UNITY

by

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Committee on Performance-Based Teacher Education

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Preface

The American Association of Colleges for Teacher Education (AACTE) is pleased to publish this paper as one of a series of monographs sponsored by its Committee on Performance-Based Teacher Education. The series is designed to expand the knowledge base about issues, problems, and prospects regarding performance-based teacher education as identified in the two papers on the state of the art developed by the Committee itself.[1]

Whereas these two papers are declarations for which the Committee accepts full responsibility, publication of this monograph (and the others in the PBTE Series) does not imply Assocation or Committee endorsement of the views expressed. It is believed, however, that the experience and expertise of these individual authors, as reflected in their writings, are such that their ideas are fruitful additions to the continuing dialogue concerning performance-based teacher education.

One of the challenges of designing any teacher education program is the task of conceptualizing the nature of the professional role or roles for which students are to be prepared. This conceptualization is that which provides unity for the training program. The designing of a PBTE program presents a special challenge to teacher educators since the determination of the competencies to be included in the program is dependent on how one conceptualizes the teacher's role or roles. The selection of the competencies contributes to the unity of the training program. The Committee believes that in this paper which focuses on the concept of unity Joyce, Soltis, and Weil have made a significant contribution to the literature on PBTE and to AACTE's PBTE Monograph Series.

AACTE acknowledges with appreciation the role of the National Center for Improvement of Educational Systems (NCIES) of the U. S. Office of Education in the PBTE Project. Its financial support (provided through the Texas Education Agency) as well as its professional stimulation, particularly that of Allen Schmieder, are major contributions to the the Committee's work. The Association acknowledges also the contribution of members of the Committee who served as readers of this paper and of Gertrue Mitchell who provided technical assistance in editing the manuscript. Special recognition is due Lorrin Kennamer, Committee Chairman; David R. Krathwohl, member of the Committee and chairman of its publications task force; and members of the Project staff for their contributions to the development of the PBTE Series of monographs.

EDWARD C. POMEROY
Executive Director, AACTE

KARL MASSANARI
Associate Director, AACTE
and Director, PBTE Project

Introductory Note

Because it points to the need for each performance-based program to have an integrated wholeness, this monograph is one of the most important we have sponsored so far. Nothing is more devastating to a field than to be the victim of a fad gone wrong. Nothing more concerns the AACTE Committee sponsoring these monographs than that this could be happening in some newly developed PBTE programs. The mindless translation of eclectic current programs into a pieced-together patchwork of competencies could be the outcome of PBTE. The forced development of PBTE programs which is now taking place in the numerous states where such programs are mandated, makes this more likely.

This monograph describes the most likely outcomes of different modes of program building. In so doing, the authors warn of the difficulty of attaining an integrated and internally consistent program if one uses certain currently popular patterns of program building.

More important, the monograph describes the different kinds of integration that can be built into a program, and gives some very meaningful examples. The kinds of integration proposed are important answers to the criticisms of PBTE leveled by Dr. Harry Broudy (see PBTE Series Monograph #4- *A Critique of PBTE*.) Broudy was concerned that teacher education programs might concentrate almost solely on didactic skills and become purveyors of unrelated, isolated, and, especially, easily taught behaviors. We are equally concerned that this could happen, but are convinced that it *need not* and *should not happen*. Our earnest hope is that by calling attention to the problem and through this analysis which points to ways of solving the problem, this monograph will contribute to the more solid development of new programs, as well as cause some of the jerry-built to be reconsidered.

This monograph signals a turning point in the topics to be considered. Satisfied that we have at least opened the door to some of PBTE's potential, shown how it is being developed, and critiqued some of its weaknesses, more of our future publications will call attention to important problems and, wherever possible, suggest solutions.

In this way, we hope to facilitate the full trial and development of PBTE/ CBTE-type programs -- not so "they will inherit the earth," but so they may be tried on an extensive enough scale to contribute their full potential to advancement toward more truly effective teacher education programs.

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DAVID R. KRATHWOHL, Member of the
PBTE Committee and *Chairman* of its
Task Force on Publications

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Authors' Introductory Note

We wrote this monograph because we are convinced that those who would attempt to construct Performance-Based Teacher Education programs need to be made aware of the variety of alternatives available to them. Moreover, we feel that the charges of a Broudy and a Nash writing in two recent papers in this series that Performance-Based Teacher Education is too atomistic and antihumanistic need to be countered. And finally, we believe that the idea of Performance-Based Teacher Education is an idea worthy of serious philosophical and curricular thought.

We know that some persons fear that the competency orientation will result in a narrower range of teacher competency than is presently the case. We challenge this question. Hoetker and Ahlbrand[1] among others have reviewed the studies of teaching and documented the persistence among teachers of the recitation method, one of the narrowest, most dull ways of teaching children. They have documented the fact that this is widespread. In fact, at present, there are few teachers who deviate very widely from the recitation methodologies.

A second hesitancy arises over doubts about the feasibility of training teachers to complex teaching behaviors. This paper discusses the evidence on this question. Our belief is that it is clearly possible to train teachers. Among others, the research and development efforts of Popham and Baker,[2] Allen and Mac-Donald,[3] Borg et al,[4] Joyce, Weil, and Wald[5] support this position.

We believe that the paper we have presented to the AACTE indicates the vast variety of alternatives that there are in education and documents the fact that the competency orientation is much more likely to achieve diversity in teacher behavior than is any other methodology thus far applied to the education of the teacher. We believe that to select the competency orientation does not mean that one has selected a particular type of educational orientation for children. It rather means that one has decided to do battle with incompetence both by establishing a minimum of professional standards and by creating the diversified patterns of competence that are necessary to create contemporary schools to meet emerging societal and personal needs.

Such a choice demands a clear conceptualization of the alternatives and the factors that will make possible the development of a functionally integrated and unified program. To this end we have written this paper.

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[1] Hoetker, W. J. and Ahlbrand, "The Persistance of Recitation" (See References)

[2] Popham, J. and Baker, E., Prentice Hall Teacher Competency Development System (Englewood Cliffs, N. J.: Prentice-Hall, 1973).

[3] Allen, D., MacDonald, F. J. and Orme, M. "Experiment II: Effects of Feedback and Practice Conditions on the Acquisition of a Teaching Strategy" Stanford U.,1966.

[4] Borg, W., Kelly, M.,Langer, P., and Meredith, G. The Minicourse: A Microteaching Approach to Teacher Education Beverly Hills, Calif.: Collier-Macmillan Educational Services, 1970.

[5] Joyce, B., Wald, R., and Weil, M. "Models of Teaching as a Framework for Teacher Education: An Evaluation of Instructional Systems," Interchange Summer, 1973.

Seeking Alternatives to the Generalist Teacher

Teacher education in the United States has been obligated to operate with a very broad conception of the teacher. Under the existing elementary license, for example, a qualifying professional is expected to teach almost any kind of child several subject matters in rural, urban, or suburban schools. The secondary licenses, while somewhat more subject-specific, are similarly unrestrictive. Consequently, teacher educators have tried to prepare a generalist teacher -- that is, a practitioner who could draw upon many approaches to achieve a large number of educational objectives with a variety of children. With such a broad conception of the teacher's role, sharply-defined specifications of competence have been operationally impossible. Emphasis in teacher preparation had to be on the acquisition of general knowledge about subject matter and methods of teaching.

The breadth of the teacher's roles not only resulted in very broad goals which prevented sharply focused training for specific tasks, but broad, indirect, and general training as well. Courses in the philosophical, social, and psychological foundations were, for the most part, didactic -- far removed from clinical training. Surveys of methods oriented the prospective teacher to instructional trends, but provided little direct training. Courses in the subject areas were likewise separated from training. Originally, the field apprenticeship to an experienced teacher was intended as a first encounter to the real world of teaching and a time to begin applying what he had learned in four years at the university. Unfortunately, the learning of subject matter, method, philosophy, and psychology was usually too far removed to be applied. Thus, while student teaching provided socialization to the classroom, it was separated from the rest of teacher education and rarely provided the opportunity to apply what had been learned. Essentially, the apprenticeship became an independent course in classroom teaching. Moreover, the field experience itself exerted a stifling influence on the apprentices by socializing the new teachers into the ways of the older ones. Student teachers feel considerable pressure to conform in the apprenticeship setting. In addition, they believe that the older teachers and principals are educationally conservative. The end result is pressure to accommodate to the style of the cooperating teacher. In effect, the styles of the new teachers are funneled toward the mean of the experienced ones.[2]

In most clinical training during student teaching, the cooperating teacher exerts a powerful influence. While education professors talk *about* practice, they do little direct training. It is the cooperating teacher who is in the controlling position. The broad theories about foundations and methods are submerged in the pragmatic world of day-to-day education and the potential of their impact is lost. The education professors are functionally impotent, as are their colleagues in the academic disciplines. The schools bear an impossible burden of training. The teacher candidates are caught between, on the one hand, practice and practitioners and, on the other, intellectual substance and theory.

Searching for Teaching Competencies

Given these disturbing features of present-day teacher training, a growing number of contemporary educators are weighing the merits of performance - or competency-based teacher education. The approach holds the promise of some clear specification of teacher education goals and of more direct and integrated forms

of training and assessment. They have found no easy answers in their attempts to develop sound competency-based teacher education programs. Teaching is a complicated activity about which we have relatively little systematic knowledge. The potential range of competencies involved is dizzying -- among them, sensitivity to others, empathy, self-awareness, knowledge of substance, and a considerable clinical repertoire.

Further complications exist because teaching includes numerous roles appropriate to a large number of diverse models, styles, and strategies such as: counseling, behavior-shaping, group dynamics techniques, simulation, and multimedia laboratory tasks. Controversy abounds about which roles to emphasize and which strategies to use. Added to the complexity is our ignorance: we lack clear evidence about what does work in teaching.[3] Thus, selecting critical competencies involves hypothesizing because we have no assurance that the skills selected will actually produce successful teaching.

The complications arising from complexity, controversy, and ignorance must figure in any performance-based orientation to teacher training and we need to face these problems squarely. Teaching roles and training methods need clarification, with training programs as an avenue to increase knowledge about teaching.

Essentially we have to plan to prepare teachers with a burden of ignorance which is multiplied by the complexity of teaching itself and by considerable uncertainty about training methods. The competency orientation is attractive because it seems to offer a rational and systematic way of dealing with such complexity as we approach at least some of the important questions. But the competency orientation is promising for another reason: it puts to work some of the valuable empirical knowledge about teacher training methods. Although literature about the nature of teaching competency is still speculative, the solid research on training is growing -- particularly the general effectiveness of multimedia instructional systems. There is important evidence that we can build instructional systems which teacher candidates -- and experienced teachers as well -- can use to teach themselves complex clinical skills which traditionally trained teachers appear unable to use.

This evidence comes from the Far West Laboratory,[4] Stanford University in California, the University of Texas Research and Development Center,[5] the University of California at Los Angeles,[6] and Teachers College, Columbia University.[7] Experimenters in these locations have successfully developed instructional systems enabling teachers to learn potentially powerful teaching strategies which traditional programs not only fail to teach, but may actually repress. The evidence is consistent enough to support the assumption -- essential to the competency orientation -- that if the resources for development can be obtained, nearly any teaching competence thus far defined can be taught directly and systematically. Competency-oriented training programs depend heavily on the development of instructional software[8] built directly on the training research. Software-based instructional systems are, in fact, the basic elements or modules of a program. Because the role of the teacher is complex, a program must consist of multiple elements which require both coordination and focus so that the teacher will not only master specific competencies, but also integrate them intelligently and effectively in his work with children.

If competency-based programs are to succeed, they must be more than the ever so carefully-engineered parts. They must also have the power to help the teacher integrate competencies to fulfill carefully-defined educational roles. Hence we are concerned in this paper with exploring some ways to build highly articulated

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well-integrated competency-based programs for teacher education.

The competency orientation offers teacher education these advantages:

1. More sharply defined teaching roles than before,

2. Systematic, direct training for developing competencies to carry out those roles,

3. Program management techniques which permit research on teaching effectiveness to be a central part of the training process, and

4. Program improvement based on research evidence.

In pursuing these advantages we will need a better working definition of the teacher's role and improved training strategies.

It is true that competency-based teacher education programs can emphasize any number of conceptions of the teacher. What kind of teacher should ultimately be produced -- whether an instructional manager[9] or a faculty member at Summerhill-- is a valid issue in building any single program; but the issue is not the concern of this paper. Our focus is on alternative ways of building programs, unifying their elements, and articulating them with roles in the schools.

Focusing on Development

Comprehensive program planning requires these basic tasks: creating a model of the teacher from a system of inter-related competencies, building storehouses of instructional and assessment systems, and developing the requisite management system. These four systems -- teacher system (model of the teacher), program system, assessment system, and management system -- need to mesh tightly together.

The first task is to "design" the teacher -- the teacher system -- by creating a model of his role and his operation.[11] A number of stances toward teaching are possible which, when applied, results in dissimilar models and different conceptions of competence. No matter which approach is taken, the model of teaching will be complex because the number of identifiable competencies is large. In 1968 the Bureau of Research of the United States Office of Education identified on the average of 2,000 to 3,000 competency specifications from teacher education programs in individual institutions or through small consortia. Not included were state-wide consortia. It seems reasonable that the number of specified competencies will increase when the political base for establishing them broadens. By the time teacher and administrative associations, students, and the public add their input, the number of potential competencies of a teacher will be huge, compounding the already difficult process of identifying the most important competencies.

The program system is designed to produce the competencies in the form of a storage and retrieval system of mediated instructional systems and agent-mediated components. It represents the means for performance-based teacher education. The number of items stored as instructional systems will be equal to or somewhat greater than the number of specified competencies, depending upon the number of given options. Also, the extensiveness of each instructional system is much greater than the specification of any competency. It will be difficult enough to specify critical competencies; developing the program elements necessary to achieve them will be even more complex and demanding, requiring years of intensive development and testing by a large team.

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When properly organized, the assessment system can provide a diagnostic profile of the teacher candidate and the means for tracking his progress to determine when certification should be granted. The system can also diagnose the competency of inservice teachers and relate their needs to the instructional systems to be used in in-service education.

The magnitude of the teacher, program, and assessment systems requires the use of a contemporary management system for diagnosis, prescription, tracking of progress, and feedback to teacher candidates, teachers and program licensing managers. Without a complex, automated management system, individualization or personalization would be impossible. Without a modern information system, chaos would occur at the point of implementation. The complexity of specifications and training devices would defeat any other presently-available option for program control. Fortunately, management systems can be shared among programs. It is possible for example, to imagine a state-wide management system which individual teacher training institutions would use both for program design and management.

Building the Program

Any competency-based teacher education program consists of a great many detailed elements or units. Furthermore, the teaching competencies are diverse. In the past, programs could be described as a set of six to ten courses accompanied by student teaching. A competency-based system, however, is a vast array of competencies, program elements, and assessment devices.

Ultimately, though, the teacher is an organic unity -- a real person interacting with live children in an actual school. He himself is not a set of inter-related competencies, but rather he possesses them. The real test for teacher education centers around whether the teacher can really integrate these competencies and skillfully transfer the teaching situation to them.

Consequently, a major design task is to build programs which, although they contain many elements, have a unity and power that results in the teacher's development of a unified personal and professional competence. The task is not simply to make some modules in order to create a program. Instead, we have to build a unified program design which contains and inter-relates many modules.

The two major variables in teacher education programs are the conception of the teacher (the objectives of the program) and the instructional strategies or models used to educate him (the methods of the program). In the most unified programs, the models of teaching and of training are both internally unified and compatible with each other. If unity and compatibility are lacking, the result is a fragmented model of the teacher coupled with an incompatible, chaotic training model.

Teacher education has always been plagued by discontinuity between its objectives and methods. Instructors *tell* masses of teacher candidates to *individualize* instruction and send them to schools where they *administer* standard texts. The competency movement offers the opportunity to remedy the situation by building programs of compatible ends and means. Unlike Broudy who feels that the competency orientation will be atheoretical, we are concerned that teacher education traditionally has taught theory in ways incompatible with that theory and without teaching the teacher how to use the theory in the classroom.

In building a program from alternative strategies, different problems arise with respect to the achievement of unity. For example, we can classify program-development strategies along a continuum from the *particularistic* to the *wholistic*.

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In particularistic strategies, program elements are designed and built separately. In wholistic strategies, they flow from an overall conception which governs the creation of the pieces and provides screens through which they are filtered and unified. The most extreme example of *particularism* is to build a competency system item by item -- specifying one competency after another until the list is adequate. After the list is categorized the highest priorities are selected and modules or instructional systems are developed. The "atomic" particles thus created can be built into "molecular" structures -- that is, sets of related modules. Assessment devices are then attached to each molecule. Finally, the elements are organized through a management system. Considerable unity can be achieved if development is carefully managed, but loose management could yield a loosely connected string of competencies and program elements.

A more wholistic strategy starts with building a model of the teacher in terms of general categories of competence relative to a given role of the teacher or educational model. As an example, several developers have identified categories of competence for the use of computer-assisted instructional (CAI) systems: diagnosis, prescription, competence to develop a facilitative relationship with children and feedback. Then teams clarify specific objectives and develop components for achieving the categories of competence. The wholistic approach invites considerable unity. The components usually have a fair amount of internal unity so that the chief unifying task becomes that of ensuring relationships among components.

The most wholistic approach is to develop a comprehensive model of the teacher and to conduct research to identify its important dimensions. These dimensions become the objectives of program components. Training strategies are selected for compatibility with one another and with the overarching model of the teacher. Unity is easily achieved in this way since program elements develop within a conceptual umbrella.

However, the wholistic approach requires a great deal of agreement among the members of the development team and probably centralized control of development is necessary as well. For a large consortium it might prove a giant task to reach unanimity on the preferred model of the teacher and the methods for training him. Probably the more particularistic methods are necessary when design and development teams are large and heterogeneous, whereas small groups of theoreticians can best employ the more wholistic strategies. Each approach has its problems, as we shall see. Particularists have to depend on careful management and on the use of devices which create relationships among program elements. Wholistic approaches are conceptually tricky and require heavy research during the initial stages.

Creating a Model of the Teacher

The remainder of this paper will deal with what we consider to be the substantive heart of teacher education: creating the model of the teacher and selecting training strategies. Assessment and management will be dealt with only indirectly. Throughout the discussion we will be concerned with the central quality of *unity*, both in the model of the teacher and in the processes which will be used to prepare him.

In a performance-based program detailed goals are specified and agreed upon prior to instruction. The student must either be able to demonstrate his

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ability to promote desirable learning or exhibit behaviors known to promote it.
There is general agreement that a teacher education program is performance-based
if: "Competencies (knowledge, skills behaviors) to be demonstrated by the student
are derived from explicit conceptions of teacher roles, stated so as to make pos-
sible assessment of a student's behavior in relation to specific competencies,
and made public in advance."13

Beyond this agreement, two really critical questions emerge: How do we go
about identifying and explicating the teacher roles and how do we use the resultant
models of the teacher as program goals? Although it is possible to create
a good model and still fail to put together a good program, the model of the teacher
is nonetheless extremely important for philosophical and technical reasons.
Philosophically it determines the *direction* of the program -- the kinds of school-
ing that the teacher will be prepared to carry out. There is no more powerful
way to make a statement about education than to prepare a teacher, nor is there
a better way to live a philosophy.

In addition, philosophically, the model of the teacher expresses a view of
a human being and of teaching as a human process. Accordingly, the selection of
the model reflects an important humanistic decision by its actual choice of a
preferred mode of education and by the fact that the training process inevitably
affects the humanity of both trainer and trainee. If a humane teacher is to
emerge from a training program, then the conception of the teacher must be
humanly as well as technically and substantively effective. If the teacher is
expected to love his students and to cherish his opportunity to be with them,
then the model of his performance should express love and devotion. By contrast,
if he is manipulated by his training he may become a manipulator. The model tells
him what we believe about the human condition. The model of the teacher is tech-
nically important because it must yield coherent and trainable competencies which
add up to an integrated, effective teacher of students. If the model is vague,
chaotic, or artificially contrived through forced relationships among incompatible
competencies, the program -- and its results -- will be diffuse and contradictory.

Research must have a central role in creating the model of the teacher. We
should realize the present bounds of our own ignorance. A simple, reliable, all-
purpose model of the teacher cannot yet be created. Our past years of search
for a few criteria which define general effectiveness have yielded little solid
knowledge. Instead, we are beginning to have some reasonable, but untested models
of the teacher accompanied by a little knowledge about a few skills which enable
teachers to do some specific things effectively. The ability is there to gener-
ate strong general models which can guide program development, but which are ten-
tative in the sense that they need continuous testing and revision. Commitment
to a model of the teacher thus involves a decision to carry out research. The
testing of the model -- essentially a search for knowledge about teaching and
teacher training -- should be embedded in the program development and implemen-
tation process, resulting in specific, tested principles, to guide teaching and
training.

For many years research on teaching was guided by the hope that there would
be some kind of general magical variable that would account for teaching effective-
ness. Gage has pungently commented:

The so-called criterion problem misled a whole generation of researchers
on teaching and burrowed them in endless and fruitless controversy and

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drew them into helplessly ambitious attempts to predict teacher effec-
tiveness over vast arrays and spans of outcomes, teachers' behaviors,
time intervals, and pupil characteristics all on the basis of predicted
variables that had only the most tenuous theoretical justification in
the first place.

...If the global criterion approach has proved to be sterile what was
the alternative? The answer was to take the same path that more mature
sciences had already followed: if variables at one level of phenomena
do not exhibit lawfulness, break them down. Chemistry, physics, and
biology had in a sense made progress through making finer and finer
analyses of the phenomena and events they dealt with. Perhaps research
on teaching would reach firm ground if it followed the same route. [14]

The prospect dismays some who feel we should already know what good teaching
is and excites others who see an opportunity to search for knowledge about effec-
tive teaching.

Gage suggests that teaching be studied: "...in delimited, well-defined com-
ponents that can be taught, practiced, evaluated, predicted, controlled and
understood in a way that is proved to be altogether impossible for teaching viewed
in the larger chunks which occur over the period of an hour, a day, a week,
or a year." [15]

We should be realistic about what is possible. The research which Gage has
suggested will yield results only *gradually*. Present knowledge does not raise
us above the level of a complex hypothesis. Nor can we know beforehand that the
model will work; it cannot be tested until much of the program has been developed
and implemented. What reliable knowledge we have resides in fairly small units --
i.e., models of teaching which can serve specific purposes. Our model of the
teacher has to be extrapolated from studying these small units, combined with
judgments about other characteristics essential to defining teaching tasks. Then
the program elements have to be created and teachers trained with them before
testing can begin.

Identifying the Teacher Model: Five Strategies

We have five major options for creating the model of the teacher. They
are: a model of the school, a general model, a particular educational approach,
a practitioner model, and a traditional teacher education model.

Each strategy has distinct strengths and weaknesses. The model of the
school involves some description of its teachers' activities and assignments of
the major learning strategies they will use, and of the kinds of relationships
they will have with pupils and with each other. These descriptions of teaching,
in turn, form the models of the teacher. The resultant conception of the teacher
is compatible with the education to be used in the school. Furthermore, by
linking teacher training to specific teaching tasks in a specified educational
environment, real-world relevance is possible. Nor need there be a single model;
if the model of the school uses a differentiated-staffing plan, several models
of the teacher can be developed and integrated. But tying teacher training to a
particular model of the school or to a real school is not without problems. A
teacher who was prepared to work in one kind of school might need additional

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training before he could operate in another one. This problem would diminish
if every school contained a Teacher Center in which the competencies appropriate
for that school could be learned. The teacher could then be "retrained" whenever
he moved into a new school setting. If teacher training were a lifelong process,
individual schools could create their own organizational patterns and models of
education, confident that these procedures would prepare teachers to work effec-
tively in their pattern.

A second strategy -- creating a general model of the teacher -- would iden-
tify the most common roles that a teacher might play in a variety of classrooms.
This process requires a general model of the classroom and a consistent general
model of the teacher for the typical classroom. The resulting conception would
be broken down into sets of specific competencies. The teacher thus identified
would be expected to fulfill those major educational roles required of a generalist.

The approach has its own kind of real-world relevance. Most teachers today
are, in fact, generalists. Even those who have a subject specialty are expected
to play many roles and use a great many educational models in their teaching. A
disadvantage becomes apparent; however, in the extreme complexity of any such
role when it undergoes a systems analysis. The Bureau of Research teacher training
program models -- assuming the teacher as generalist -- noted competencies of
almost 3,000. Such extremely complicated role-description is difficult enough
to think about or to train; it is even harder to assess.

A third strategy -- the particular educational approach -- develops a speci-
fic curriculum plan and educational materials, and derives the specifications of
the teacher from the roles necessary to make that plan work. Examples of this
strategy already exist. Individually Prescribed Instruction (IPI), for example,
is a systems description of the teacher's roles, and teacher training materials
for implementing the IPI plan. In the early childhood domain there are four
approaches: Englemann-Becker,[16] Montessori,[17] Bushell,[18] and Bank Street.[19]
Each includes materials, teaching role descriptions, and training systems.

The particular approach to the definition of the model of the teacher also
has obvious real-world advantage: The teacher who is trained in this way can
presumably implement that educational model effectively. It has the same
liability of the model of the school approach: When a teacher moved into a
school which embraced a different educational approach, he would probably need
further training. Eventually we may come to know more about transfer of skills
from one approach to the other. Maybe, for example, a teacher who masters the
Engelmann-Becker approach can transfer immediately to the Montessori model and
vice versa. But, for the present, a conservative interpretation that fresh
competence will be needed is the soundest guideline.

If one selects a preferred philosophy or educational theory, creates his
model of the teacher from it, and then trains the teacher by it, he obtains great
unity by the particular model approach. But he also puts all his eggs into one
basket. An entire training program can emphasize, for instance, personalistic
theory,[20] group dynamics,[21] cognitive theory,[22] or behavior modification[23] and
teach the teacher to use that theory to solve his problems.

A fourth strategy -- the practitioner mode -- can specify the teacher through
one of two approaches. First, superior teachers can be identified by peers,
students, supervisors, or a combination of these. By studying their behavior

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objectively, we can identify their specific strategies of teaching. These strategies, in turn, become specifications for a model of a teacher. Essentially, a model of a teacher is identified from model teachers.

A second approach involves asking practitioners which competencies they believe are important. After organizing these competencies, we develop criteria for selecting key ones which then become the specifications of a model of a teacher. Developing the model of the teacher from real working teachers has the advantage of real-world relevance. In operation, though, it has two disadvantages. First, teachers may not agree on what competencies are important. What works for one may not work for another. Second, personal competencies may well be expressions of personality. Good teachers might turn out to be highly idiosyncratic artists whose qualities are not amenable to training on any basis. It is extremely important that the model of the teacher which is selected be a *trainable* model. The behavior of the expert practitioner might be an expression of style rather than strategy, requiring certain kinds of personalities rather than certain kinds of competencies. But, if the practitioner does turn out to be the best informant, these difficulties may not be hard to solve.

A fifth strategy -- explicating the components of traditional teacher education programs -- is the most common way of identifying the competencies of the teacher. It is relatively clear-cut: the components of an existent teacher-education program are translated into competency terms. For example, the traditional teacher education program includes methods courses, education psychology, the social foundations of education, and an apprenticeship to an experienced teacher. A course in mathematics education, for example, would be broken down into specific competencies.

This strategy for applying the competency orientation is easily implemented with new program components simply replacing old ones. But the approach presents problems. For one thing, traditional teacher education programs were not constructed from a competency-orientation. Their components may not be amenable to specification in terms of sets of interacting, mutually-reinforcing competencies.

But this fifth strategy has a second problem. It rests on the assumption that the course components of the teacher education programs have in the past been relevant to the needs of the teachers -- an assumption that many teachers would challenge. Actually, the problems of integration and unity as well as adequacy of the components present major drawbacks to any literal translation of traditional education into competency-based terms. Certainly, building competencies from traditional teacher education programs is the most widely used and most conservative approach. It is also the approach most tied to past conceptions. Some of the other strategies are more promising in preparing people to generate new forms of education. As we examine the alternatives more closely in the next pages, we will see, though, that they present their own problems in achieving a program of unity and power.

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Using the Model of the School.

Because teachers work in schools, it would seem logical to develop teacher training programs by designing schools and then identifying the kinds of competencies needed to work in them. On ground of field relevance, particularly, the approach holds appeal. However, deriving the teacher model from the model of the school creates certain problems. (If a teacher is prepared to work in one kind of school, will he be able to work in a different model?)

In recent years, teacher training programs have frequently been criticized for not preparing teachers to carry out the roles generated in innovative schools. Team-teaching, for example, has created considerable difficulty for teachers who were trained for self-contained classrooms or as departmentalized specialists, and who lack the ability to teach themselves skills necessary for the new roles. Why not, then derive the model of the teacher directly from the roles required in innovative schools? But, if this is done, will a teacher have the competency necessary to operate in other kinds of schools? To some extent, the second question is satisfied if a teacher who changes jobs will be trained for additional competencies in the new schools.

While any number of general conceptions of the school could be used as a starting point, none has yet been fully explicated in terms of teaching competencies. It would take a major research and development effort to build a detailed model of a school for use in deriving the competencies of the teacher. To illustrate the process that might take place we shall describe a model of a mythical school, its instructional roles, and the models of the teacher or systems of interrelated competencies which are required for those roles. In deriving the competencies of teachers from a model of the school, it is especially crucial that the objectives, procedures, organization, and support systems of the school be identified as a complete conceptual working model of the school. The task demands considerable precision.

Our school is housed in more than one building.[24] A series of learning centers, with shared support centers (see Figure 1) which occupy a variety of physical locations. The learning centers -- each one designed to serve a particular purpose (see Figure 2) -- are staffed by teachers whose roles in the lives of students are somewhat different from traditional roles. These roles require different competencies so that from the centers distinct, but overlapping, models of the teacher emerge.

The Idiosyncratic Center offers services on the students' own terms. Its staff of counselors and facilitators relate to the students as equals, helping them to formulate goals and procedures. The facilitator teachers help the students relate to a variety of part-time teachers -- members of the community who volunteer as tutors, resources, advisors, and teachers of short courses.[25] In addition, they help students relate to the other centers where additional teachers and tutors can serve them. Figure 3 illustrates the inter-relatedness. The center has a multimedia library which draws on automated storage facilities shared by all the "schools" of the region. Its Instructional Systems Bank is an array of self-administering multi-media instructional systems, covering the most common curriculum areas. A modular plan helps students to select and assemble sequences for specific purposes.

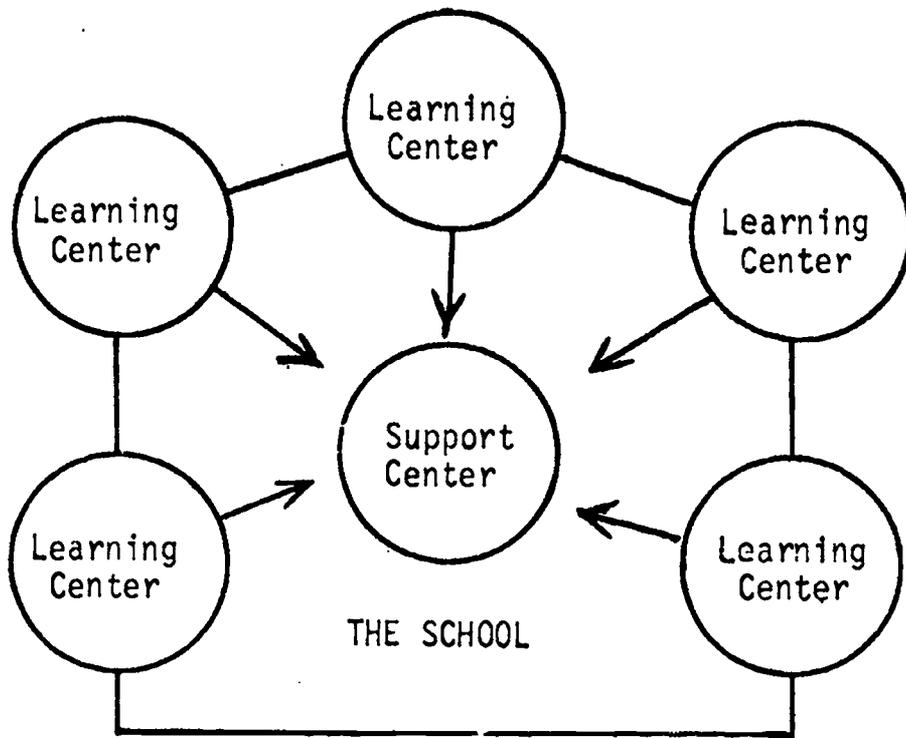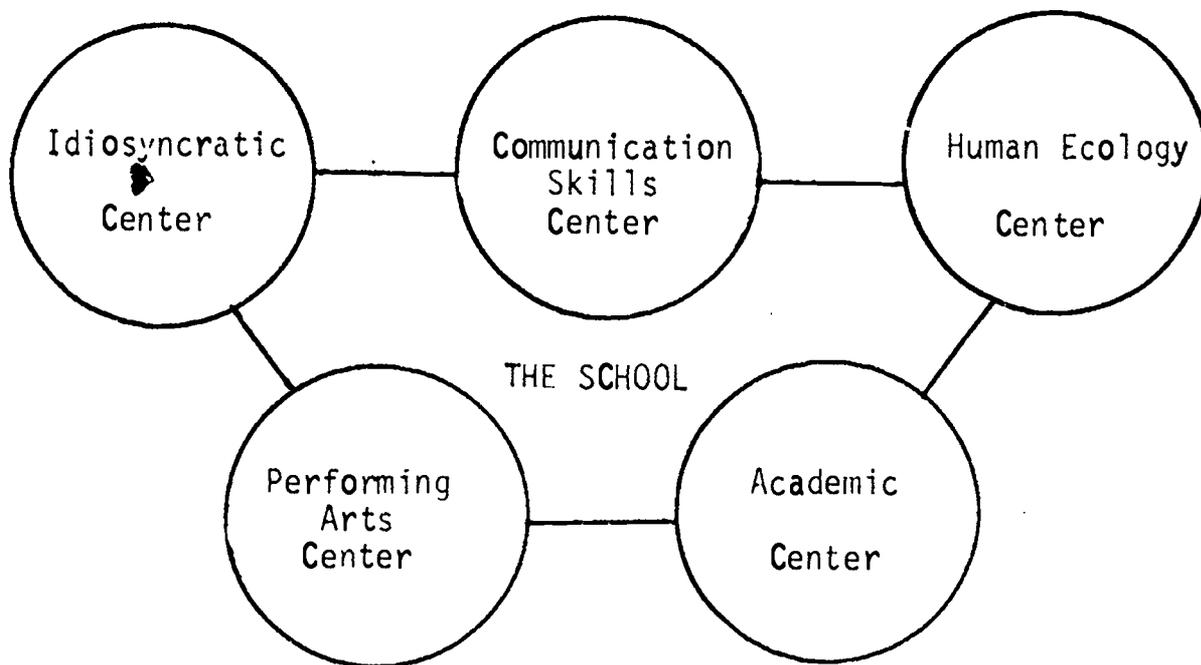# FIGURE 1.

Learning and Support Centers

FIGURE 2.

Learning Centers by Purpose

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In the Idiosyncratic Center's counseling areas, students make contact with counselor-facilitators[26] for help in defining goals, mapping out procedures and actualizing plans. Such services of the Idiosyncratic Center are available to students from early childhood until senescence. In the student's early years the center supports about a third of the entire schooling experience; by middle age it becomes the major resource. The counseling role requires a distinct set of teaching competencies. A counselor needs a repertoire of models of teaching in order to establish rapport with many kinds of students pursuing goals and programs of study. In addition, he must know in depth, the available support systems and their uses. Out of these needs a personalistic picture of teaching emerges,[27] requiring training in the counseling relationship and development of a repertoire of counseling strategies and skills with which to manage the role in the center.

While the Idiosyncratic Center concentrates on personal growth and individuality, the Human Ecology Center (see Figure 4) organizes problem-solving groups to study social issues and generates programs of social action. The center further employs a series of simulators to introduce students to the concept of social process. Through "international" simulators students can "act out" international negotiations and explore the world's financial, political, and ecological problems. An earth resources simulator opens up problems of resource allocation, conservation, population, and pollution.[28] An information retrieval system, based on the social situation of the planet Earth, supports student-directed inquiry.[29]

Students use the Human Ecology Center from their earliest years. At first, they concentrate on local problems and face-to-face human relations; gradually the scope increases to include ecology, urbanization, government, and the international community. The simulators enable students to study social processes, try out alternative modes of social behavior, explore strategies for human interaction, and organize for improvement of social life.

Such a learning environment requires particular skills of the human ecology teacher, e.g., group leader, human relations trainer, and information systems expert. Even though he relates to groups more than the counselors do, the human ecology teacher must use many counseling skills as he helps students to establish goals and to decide on procedures. He also needs specific subject knowledge about the political state and the nation's and world's natural resources. In these roles, he draws mainly on the models of human relations[30] and the social sciences.[31]

Life in the Communications Skills Center is quite different (see Figure 5). Students work with diagnosticians who assess their communications skills and basic areas of knowledge, and who help them find instruction through teaching systems and tutors. While the younger child depends the most on the center, persons of all ages use it at various stages in their development -- whether to sharpen old skills or learn new ones.

Communications skills in all media are included, ranging from writing and reading to more specialized areas like film-making. Older students study the nature of media in correlation with encoding and decoding skills; at the advanced levels, training is given in the comparative analysis of media and symbol systems. At every level, avenues for personal expression -- such as creative writing and filming -- are stressed.

FIGURE 3.
Idiosyncratic Center and Its Sister Centers

Other
Substantive
Centers

Counseling
Points

Support Centers
(Information, Instructional
Systems, Laboratories)
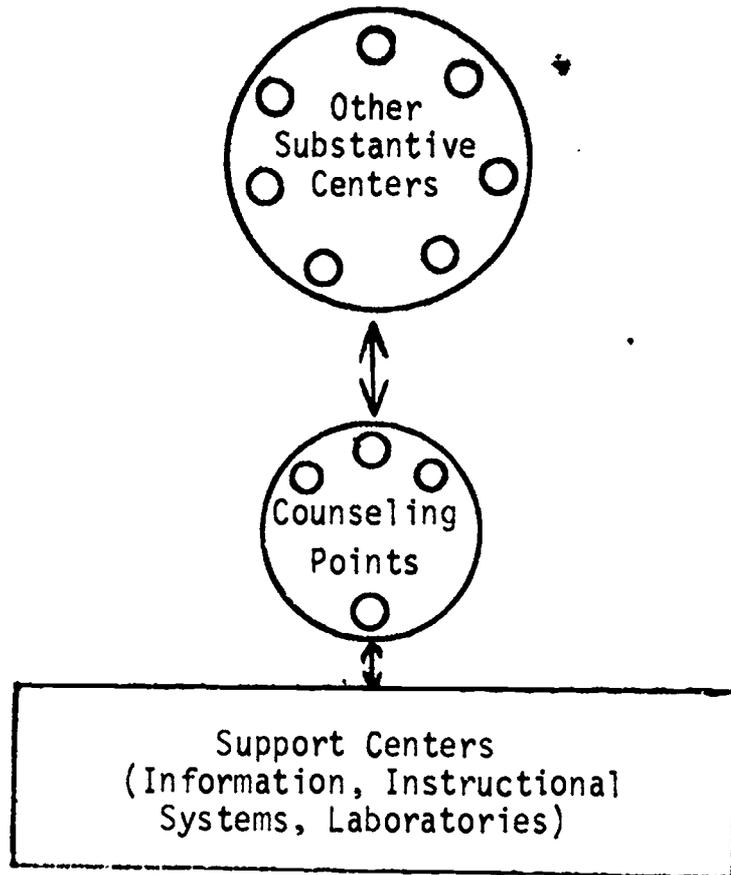
FIGURE 4.

Human Ecology Center

World Social
Situations
Data Bank

Simulators

Human
Relations
Center

Library and
Information

Social
Ecology
Center
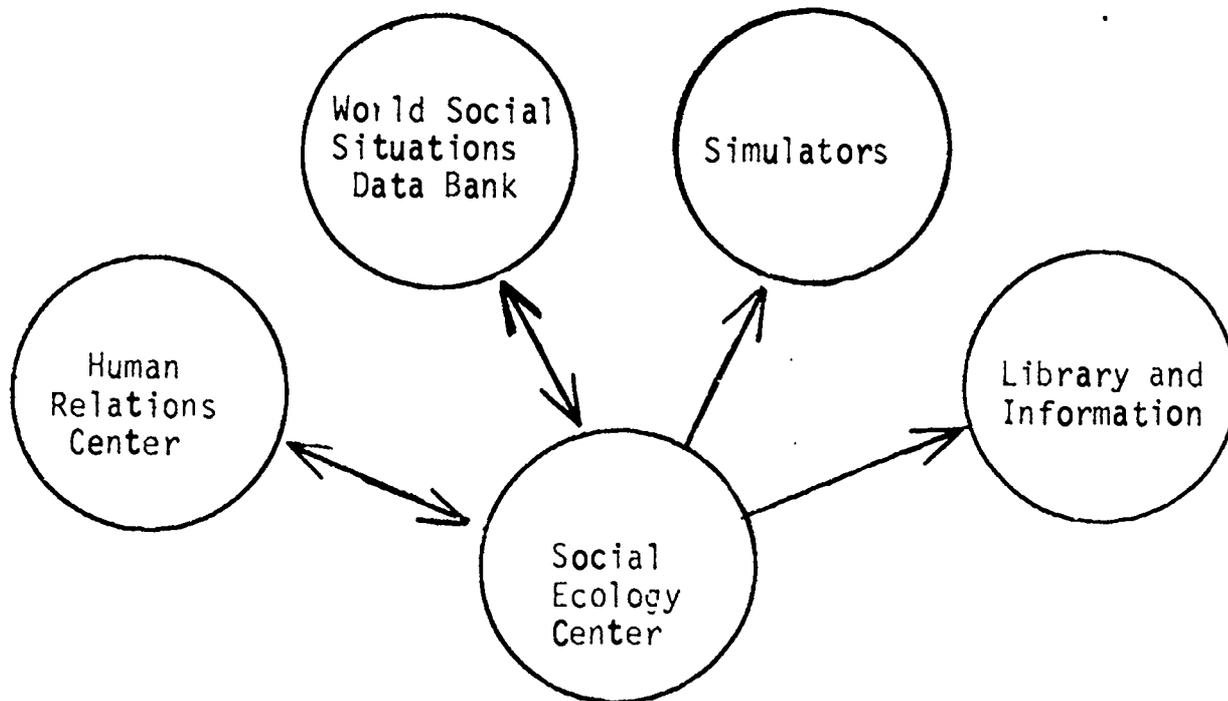
FIGURE 5.

Communications Skills Center

Instructional
Systems

Diagnosticians

Skills
Center

Tutors

Diagnostic
Systems

Media
Study

Communication
Projects

Language
Laboratories
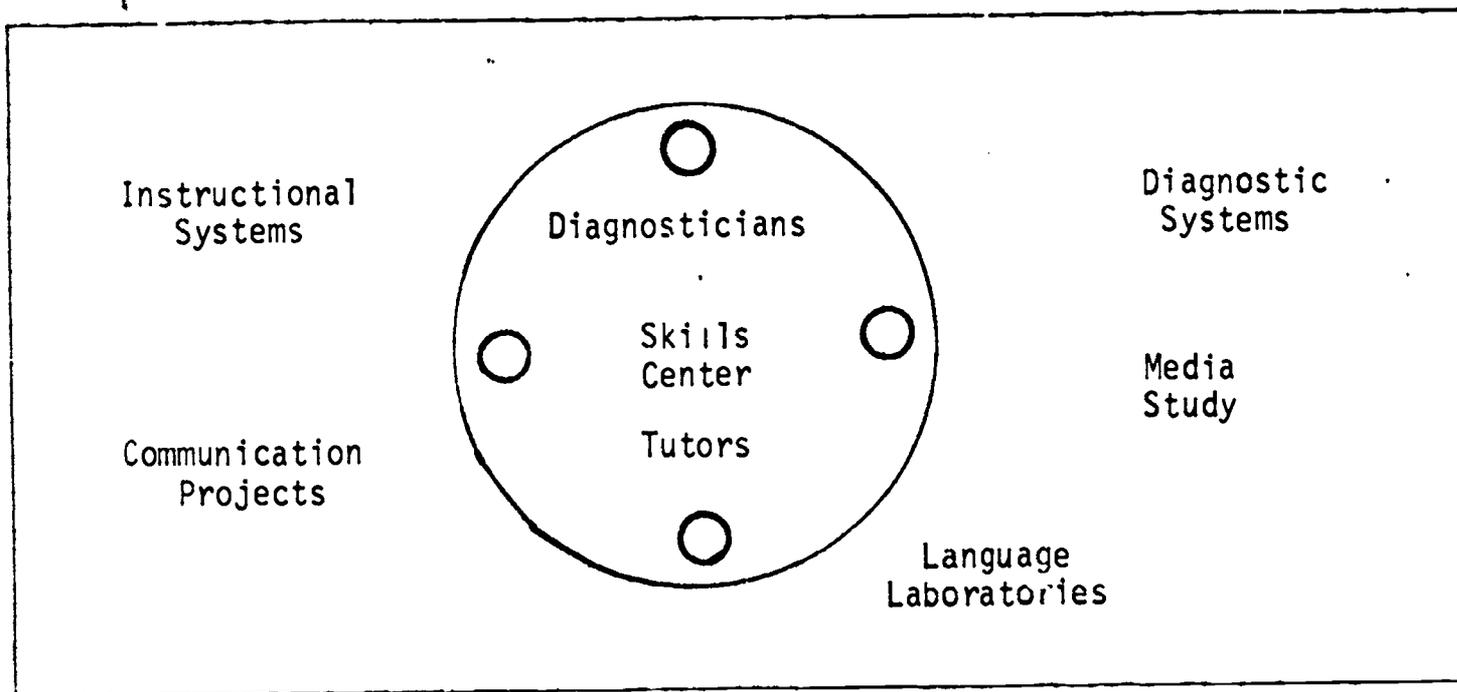
Some of the teachers in the Skills Center have to be expert diagnostician-prescribers,[33] well in command of diagnostic testing and assessment. These teachers draw upon a repertory of teaching models as they help students acquire skills; they are equally skillful in modifying teaching strategies to fit learning styles. Other teachers need both analytic and creative competence in a variety of media. All teachers in the center need to demonstrate empathetic attitudes and possess group leadership skills. In the Academic Learning Center, students and teachers study the concepts and methods of inquiry of the academic disciplines and dig into important areas of academic content. Advanced students work with academic tutors in constructing plans of personal study and group inquiry. Since work is inquiry-oriented, the center is housed in laboratories and libraries supported by the Central Library Services and Instructional Systems Center. Its teachers are well-versed in the disciplines of their specialty. They must also be conversant with the curriculum models developed by the Academic Reform Movement, and feel comfortable in using the teaching models which help students learn the concepts and modes of inquiry of the academic fields. When leading inquiry groups, they must tolerate youthful ideas while teasing the inquiry into more sophisticated levels.

The final learning center -- the Performing Arts Center -- is a network of laboratories, workshops, and little theaters throughout the community. Students may relate to its subjects of music, drama, television and film production, dance, and athletics for a number of needs: initial survey experience, recreation, skill development, or long-term expression.

Teachers in the center are themselves competent performers in one or more of the performing arts. They also can use the models of teaching useful to their specialties.[35] They are committed to performance and enjoy participation.

Yet, they must analyze performance and select the types of help their students need. Skillfully, they help students to analyze and improve their own performance.

The mythical school has other learning centers, but those we have described illustrate that at the core of the school's structure and operation is the concept that a student can acquire a variety of models of learning[36] as strategies for educating himself. He can create his education from a broad array of learning opportunities. At the same time, teams of counselor-teachers in home-base locations provide a stable environment for the younger students, while older students can turn to their Idiosyncratic Center counselors for assistance. Adults operate on their own initiative, consulting their counselors when they feel the need.

By creating a more detailed design of the mythical school and its activities, we could derive the roles of teacher.

We have suggested in the brief descriptions of each center a few of the teaching skills -- distinct, yet overlapping -- which are important, among them, counseling, facilitating, guiding groups, and individuals, using information systems, diagnosing, analyzing, learning by inquiry and serving as performing models. A far more comprehensive and explicit analysis would be required to develop an adequate model for the teacher of each center. But once developed, the models would serve as guides for teacher training programs and for research programs designed to validate the models.[37]

However, in using the model of the school, we should keep in mind certain criteria. For one thing, the competencies of the teacher should be compatible with the work of the schools. In addition, the dimensions of the model -- namely the domains of the teacher competency -- almost certainly will be integrally related. Models built from a careful analysis of the roles of the teacher should have great unity. If the role requirements have been soundly analyzed, and if the resultant models were refined and validated through research, the models should be effective, in that teachers trained to them should be effective in the specified roles.

But the model of the school approach presents a problem. A strong, distinctive plan for a school will result in distinctive sets of competencies. Yet, how well these competencies transfer to other roles in differently organized schools remains a question.

Using the Model of the Generalist

For practical reasons competency-based programs are usually oriented toward the generalist-teacher. Whereas the mythical school we have described includes a variety of models of the teacher, most existent schools are composed of generalists. They need a model of the teacher which includes many roles otherwise filled by specialists in a school employing differentiated staffing.

In most schools, teachers have two broad roles: as "self-contained" classroom instructors and as subject specialists who have multiple responsibilities tied to subject offerings. However, while the generalists must stretch their competence into more domains, the needs of the students do not diminish simply because staff-differentiation does.

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In the self-contained classroom, the teacher plays at least five key roles in creating an education having balanced development for the student:

1. As *counselor*, the teacher helps the student to negotiate his own ends and means and to understand the standards by which a learner will achieve and facilitate his personal activity.

2. As *academician*, the teacher assists the student in identifying concepts and modes of inquiry from the academic disciplines and in fitting these to problems of the natural and social world.

3. As *skill-builder*, the teacher enables the student to acquire skills in reading, mathematics, and the language arts.

4. As *productive thinker*, the teacher facilitates the student's expression in the arts and furthers his ability to generate alternative hypotheses in the substantive areas.

5. As *community builder*, the teacher interacts with groups of students who negotiate goals and procedures and encourages the warm and strong social system necessary to any form of education.

In order to identify the model of the teacher, we explicate the roles just as we would do for the center specialists in the mythical school. Let us examine each role in order to illustrate the process.

In the counselor role, the teacher negotiates with the individual learner to establish goals, motivation, and means. He also facilitates the finding of materials, other teachers, space, and time for a student to pursue his ends. Some approaches to teaching emphasize the counseling role above other ones. For example, the English Infant School approach to reading instruction concepts, requires considerable skill in counseling.[38] The models of teaching appropriate to the counseling role involve sensitivity in human relations and skill in making contact with the student -- particularly negotiating and facilitating skills of the nondirective counselor.

In a skill-builder role, the teacher must know the skills of his area -- whether reading, arithmetic, science, arts, or physical education -- and how to apprehend the student's development in those areas. It is not enough that he relate the student to productive activities, he needs further to assess the consequences of those activities. The role of skill-builder demands more precision than, say, the counselor's role. Both, however, have some form of accountability. The teacher as counselor is accountable for helping the student to negotiate goals and means; as skill-builder he is accountable for diagnostic and prescriptive abilities and for knowing when to employ them effectively.

In helping students to identify concepts and to try on modes from the academic disciplines the teacher in the academician role needs considerable competence in the disciplines and in-depth knowledge of instructional materials. In addition, he should teach both inductively and deductively so that students might learn a discipline's important concepts and carry out the processes of academic inquiry. Some models of teaching in the academic area come directly from single disciplines while others are more generalized, but everyone emphasizes the cognitive domain.[40]

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As skill-builder, the teacher is quite convergent as he helps the student to identify specific things to be learned and specific avenues for learning them; as productive thinker he helps the student to generate alternative ways with which to approach problems. To do this, he himself should think productively even creatively; therefore, the skills of the productive thinking models are quite divergent in themselves. [41]

Nearly all approaches to education depend on a consistent and warm social group. As community builder, the teacher organizes the classroom community or enables students to organize it for themselves. In this role, he needs to be able to negotiate means and ends with groups of students, using sensitivity to perceive differences in points of view and to mediate among them. He needs to socialize students through working together so that they can accept one another's behavior and respect the rights of others. All models of teaching relating to the community-building role require considerable interpersonal skill. Not every teacher has or can acquire the interpersonal sensitivity to occupy *this* role, but no one can teach who does not have a minimum of them.

To a marked extent, the five roles require an ability to apply different models in the classroom. In truth, teacher training has not succeeded in helping teachers play these roles effectively. Studies of teaching indicate that the normal teaching styles of most teachers approximate the roles of skill-builder. Other roles are ordinarily not practiced by either self-contained or departmentalized classroom teachers.[43] The analysis of the generalist's roles can result in as clear and unified a model as that of the differentiated roles in the mythical school. But, the generalist model may be too complex to teach.

Using the Model of a Particular Educational Approach

We can also develop the model of the teacher by identifying the competencies necessary to carry out a specific curriculum plan. Inevitably, this route would involve some controversy over whether any particular approach to learning is the most desirable, effective, or sufficient to carry a valid model of the teacher. In the long run, such controversy might prove healthy. Using analysis of a curriculum plan to determine competencies has been done -- at least in part -- in a number of recent cases. For example, when Research for Better Schools and the Pittsburgh Research and Development Center created the IPI program[44] they developed specifications for the competency of the teacher to ensure compatibility with the program model. Although these competencies constitute only a partial model of the teacher since IPI is not an entire school program, the work is still instructive because the IPI model specifies not only the behavior of a teacher, but the creation of technical support systems within his professional matrix. Their model of a teacher illustrates dramatically the inter-relationships between specifications of support systems and the behavior of the teacher. In preparing the teacher to administer the IPI curriculum the IPI program specifies his roles of organizing a team of teachers, using the diagnostic-prescriptive system, teaching children to use IPI Center materials, and adapting activities to individual needs.

In a number of cases, early childhood education models have been converted into a model of a teacher. Bereiter and Englemann, Bushell, Nimnic, and several others have developed curriculums in early childhood education for which materials were prepared to train teachers in using their models. Any general learning theory or particular educational approach which could conceivably embrace a great many

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of the activities in a school can be a base for identifying teaching competencies.[45]
Some single theories can plausibly encompass much of the role of the teacher -- for
example, the democratic-process models. More narrowly focused models would need
to be combined or coordinated with others.

A large number of potential models were developed which represent a wide spec-
trum of views of man and his education. We have compiled and classified a large
number of them (see Table 1). Educators, psychologists, sociologists, systems ana-
lysts, psychiatrists and others have produced theoretical positions about learning
and teaching. Curriculum development projects, schools and school districts, and
organizations representing particular curriculum areas or disciplines have also
developed approaches to teaching and learning.

The task of actually listing sources of models confirmed the large numbers.
Included were the works of counselors and therapists like Carl Rogers, Erik
Erikson,[47] and Abraham Maslow;[48] earning theorists like Skinner,[49] Ausubel[50]
and Bruner;[51] developmental psychologists like Piaget,[52] Kohlbert,[53] and Hunt;[54]
philosophers like Dewey,[55] James,[56] and Broudy.[57] Curriculum development projects
in the academic subjects and specialists in group dynamics provided many examples.
The patterns of teaching from the great experimental schools like Summerhill made
their way onto the general list. Still others do not appear on the list because
they seem too vague to provide reasonable general approaches to teaching. Others
were eliminated because of weak rationale.

We began to group the theories on the basis of what sources of reality their
theorists had used in focusing on the learner and his environment. The models
were organized into four families, representing different orientations toward
man and his universe -- even though there was overlapping among and within
families. The four families of sources are (1) social interaction, (2) informa-
tion processing, (3) the individual person, and (4) behavior modification.

In emphasizing the relationships of the person to his society or with other
people, social interaction sources reflect a view of human nature giving priority
to social relations and the creation of a better society. With respect to goals,
then, models from this orientation are directed toward the improvement of an
individual's ability to relate to others. Many of the models developed from a
desire to improve democratic processes and to educate students to improve the
society. The social relations orientation does not assume that the area of social
relations is the only important dimension of life. Social theorists are just as
concerned with the development of the mind and the self and with the learning
of academic subjects. Some, of course, have developed models specifically for
the improvement of social relations or have used social relationships as the
primary vehicle for education; but the educational theorist is rare who is not
concerned with more than one aspect of the learner's development or does not use
more than one aspect of the environment to influence that development.

Information-processing sources, the second large family of models, share an
orientation toward the information-processing capability of the student and toward
systems by which he can improve his capability. Information-processing refers to
the ways people handle stimuli from the environment, organize data, sense prob-
lems, generate concepts, solve problems and employ verbal and nonverbal symbols.
Some of these models are concerned with the ability of the learner to solve
specific kinds of problems. Others concentrate on creativity; still others are
concerned with general intellectual ability. Some emphasize the teaching of
specific strategies for thinking. Nearly all models from this family share a
concern with social relationships and the development of an integrated, functioning

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TABLE 1.

The Models of Teaching Classified by Family and Mission

Model	Major Theorist	Family or Orientation	Missions or Goals
Inductive Model	Hilda Taba[58]	Information Processing	Primarily for development of inductive mental processes and academic reasoning or theory building, but
Inquiry Training	Richard Suchman[59]	Information Processing	useful for personal and social goals as well.
Science Inquiry Model	Joseph Schwab[60] (also work of the Curriculum Reform Movement, with Jerome Bruner's *The Process of Education* for its rationale.)	Information Processing	Designed to teach the research system of the discipline, but also expected to have effects in other domains, i.e. teaching, sociological methods in order to increase social understanding and problem solving.
Jurisprudential Teaching Model	Donald Oliver[61] and James Shaver	Information Processing	Designed primarily to teach the jurisprudential frame of reference as a way of processing information, but also for thinking about and resolving social issues.
Concept Attainment	Jerome Bruner[62]	Information Processing	Designed primarily to develop inductive reasoning.
Developmental Model	Jean Piaget[63] Irving Sigel Edmund Sullivan	Information Processing	Designed to increase general intellectual development, especially logical reasoning; can also be applied to social and moral development (see Kohlberg).
Advance Organizer Model	David Ausubel[64]	Information Processing	Designed to increase the efficiency of information processing capacities to absorb and relate bodies of knowledge.
Group Investigation	Herbert Thelen[65] John Dewey	Social Interaction	Development of skills for participation in democratic social process through combined emphasis on interpersonal social (group) skills and academic inquiry, with aspects of personal development as important outgrowths.
Social Inquiry	Byron Massialas[66] Benjamin Cox	Social Interaction	Social problem-solving, primarily through academic inquiry and logical reasoning.
Laboratory Method	National Training[67] Laboratory (NTL) Bethel, Maine	Social Interaction	Development of interpersonal and group skills and of personal awareness and flexibility.

TABLE 1.

continued

Model	Major Theorist	Family or Orientation	Missions or Goals
Nondirective Teaching	Carl Rogers[68]	Person	Emphasis on building capacity for self-instruction and personal development in terms of self-understanding self-discovery, and self-concept.
Classroom Meeting Model	William Glasser[69]	Person	Emphasis on building capacity for self-instruction and personal development in terms of self-understanding, self-discovery, and self-concept.
Awareness Training	William Schutz[70]	Person	Increasing personal capacity for self-exploration and self-awareness, with much emphasis on development of inter-personal awareness and understanding.
Synetics	William Gordon[71]	Person	Personal development of creativity and creative problem solving.
Conceptual Systems Model	Dave E. Hunt[72]	Person	Designed to increase personal complexity and flexibility.
Operant Conditioning	B. F. Skinner[73]	Behavior Modification	General applicability as a domain-free approach, though probably most applicable to information-processing functioning.

self. But their primary sources remain the student's capacity to integrate and process information and to use systems -- especially academic ones -- which can help individuals to process data.

The third family -- personalistic sources -- shares an orientation toward the individual person as the source of educational ideas, emphasizing the processes by which an individual constructs and organizes his reality. Frequently focusing on psychology and the emotional life of the individual, these models are directed toward a person's internal organization as it affects relationships with his environment and with himself. Some concentrate on personality -- particularly the human capacity to reach out, make contact with others, and venture where he has not been before. Others are more oriented toward an individual's feelings about self. Still others are concerned with helping him develop an authentic reality-oriented view of himself and his society.

As with the other families, this one is not exclusive. Most of its models which are oriented around the development of the self are also concerned with the development of social relations and information-processing. Its distinctive feature is the emphasis on personal development as a source of educational ideas. Hence, while the focus is on helping the person develop a productive relationship with his environment and to view himself as a capable person, it is expected that one of the products of that will be richer interpersonal relations and a more effective information-processing capacity.

A fourth grouping -- behavior modification sources -- has evolved from attempts to develop efficient systems for sequencing learning attitudes and shaping behavior by manipulating reinforcement. Students of reinforcement theory like B. F. Skinner have developed these models, using operant conditioning as their central procedure. The term "behavior modification" has been applied to these efforts because of a reliance on changing the student's external behavior and descriptions of him in terms of extremely visable behavior rather than underlying and unobservable behavior.

Operant conditioning has been applied to a wide variety of educational goals -- ranging from military training to interpersonal behavior, even goals of therapy. Its general applicability has led to its use in many domains of human behavior which characterize the other families of models.

Our families of models, therefore, are by no means antithetical to one another; in fact, the actual prescriptions for developing learning environments emerging from some are remarkably similar. Also, within the families certain of the models share many features with respect to goals and the kinds of means that they recommend.

From the theorist's vantage point, teaching competency is the ability to create the educational environment which matches the theory. Weil[74] and Turner[75] recently analyzed promising theories in order to identify the types of skills needed by teachers to make the theory work in the classroom. Joyce, Weil, Walk,[76] and their associates -- in presenting evidence that teachers can acquire a repertory of skills for use in employing a variety of theories in the classroom -- have developed a teacher training prog.am around the acquisition of such a repertoire.

Although it takes many investigations to validate theories or even skills for carrying them out, the use of an educational theory to identify teaching competence is attractive because it results in a highly unified model of the teacher and one which is grounded in hypotheses about learning. If a school uses a theory to guide its work, then that theory can describe the roles of its teacher. The strategy should achieve considerable unity with any teacher training program which prepares teachers to use that theory as a behavioral guide.

Using the Model of the Practitioner

It is seductive to create the model of the teacher by studying the exemplary practitioner. Finding out what the best of us can do and learning to do it ourselves sounds deceptively reasonable. However, the results of objective studies to date have been disappointing,[77] partly because there is no consensus about what the exemplary teacher is. Few can agree about this -- just as debates go on and on concerning the best models of teaching or the best kinds of schools.

But another reason is that teachers show a remarkable homogeneity of style,[78] with relatively few deviants. This relative homogeneity is probably a product of the enormous demands of the classroom teaching job: given similar sizes of groups, equipment, facilities, and pressures, teachers tend to behave similarly. Furthermore, what the pupil and the communities bring to education exerts a heavy influence. In every American inner-city, for example, children tend to read below the national norm and in every well-to-do suburb they tend to read above the norm. Both environments have differences in achievement among their own students; while differences in teachers explain some of their students' differences, the magnitude of variance due to teachers is doubtless much less than that attributable to children.

Nonetheless, practitioners believed to be most able should be identified and studied. As we identify variability in teacher behavior which is associated with student learning we can attempt to learn whether those components of behavior consist of trainable skills. As we have pointed out, even if we identify effective teachers and find out what makes them different, these differences may stem from personal style rather than from a teachable strategy. One point is clear: Building the model of the teacher from the study of the best practitioners is not easy. It takes several years to carry out the necessary investigations to identify and validate teaching skills. We suspect that certain teachers employ particular teaching strategies much more effectively than others and that learners respond to them differently. Training may effect this. In fact, Weil was able to identify teaching skills which increased teachers' control of specific training strategies.[79]

Thus far, the study of practitioners has shown promise in a number of areas. A questioning style appears to effect student learning, as does focusing on content and efficient classroom management. The most intriguing finding is that greater variability or flexibility of teaching style appears to be associated with greater cognitive and effective responses by children. This suggests that good teaching is likely to be a matter of using skills or models appropriate to the learner and to the types of outcomes which are sought.[80] Effective practitioners may, as Hunt suggests,[81] be a matter of coordinating objectives, learners, and environments. We may find a picture somewhat like the one in Table 2 where the inter-relatedness of outcomes, models, learners, and teachers is emphasized.

TABLE 2

A Hypothesis About Good Teaching

Learning Outcomes	Require Appropriate Models	For Different Learners	Suited for Different Teachers
___*	___	___	___
___	___	___	___
___	___	___	___
___	___	___	___

* Lines under headings represent possible situations

Competence, rather than involving a few general skills or characteristics, is the ability to select, then use curricular and instructional models and to adjust them to suit the characteristics of students. Particularly critical are the abilities to select goals to choose from among alternatives the most appropriate models of teaching for goals and learner and to regulate one's behavior by obtaining and incorporating feedback about what is happening to that student. Table 2 illustrates these factors. If we could identify a great, describable, replicable teacher, we would have either a marvelous real-world super model or a set of exemplary teachers. Aside from being an attractive idea, the model of the teacher derived from the analysis of practice would certainly be unified -- unless it turned out that what works for some will not work for all.

Most state departments are asking teachers to recommend competencies from which a jury of practitioners will select the most promising suggestions to become the basis for certification and training. One outstanding example, the Florida Catalog of Teacher Competencies[82] -- pulled together by a committee directed by Norman Dodl -- drew upon many sources for competency statements. The sources were then indexed under a multiple index system described as "general topic headings easily associated with the act of teaching" and employing many categories and subcategories to identify teaching skills by type and potential use.

The study of the practitioner can be broadly or narrowly focused. Most post-research has sought to identify generally useful competencies and behaviors associated with good teaching in general. We believe more in a narrow focus on the differences among practitioners as they carry out specific roles associated with definite educational goals. Realistically, the practitioner can give us better information about specific aspects of his job than about teaching in general.

Catalogs of competencies related to specific areas of teacher behavior could be used by training agencies to specify goals in which they were especially interested. For example, if a teacher education planning team developed a design for a school, it might use a catalog to identify competencies relating to the teacher roles they had specified. Juries of practitioners might analyze specific roles of teaching in order to suggest the most important competencies for these roles. This method of developing a model of the teacher can be particularistic in nature. But, unless it is developed carefully, the model would amount to little

more than a huge list of unrelated competencies which would require further refining into meaningful groups before they could be used.

Yet, the method has the undeniable appeal of tapping the wisdom of the practitioners, but it is not known to what extent they would agree on important competencies.

Using the Model of Traditional Program Components

We have already pointed out that the common way to create competency statements is to identify program components based on a set of behavioral objectives in the component area. The result is an outline for a series of modular courses. Developers of the components must work closely together to identify relatable competencies. The development process requires constant review and comparison among development teams. In addition, the components themselves need to be reviewed in terms of fitting with one another.

This process is probably the most prone to disunity. Traditional teacher education components were designed for indirect teacher preparation; such a design may well not be amenable to modularization. For example, making a modular structure of a philosophy of education course may pose a contradiction in terms. The apprenticeship component was designed to capitalize on the cooperating teacher. Creating a systematic, modular student-teaching experience may be laying a systematic planning process over what was conceived to be an emergent, idiosyncratic experience. Since the components were not initially chosen after any kind of systems analysis, modularized traditional components are not likely to be much of an improvement over their original forms.

Applying the Options

The alternative processes we have been describing total up to an array of conceptions of the teacher which are quite different in form and substance and which are replete with advantages and disadvantages. From school designs a large number of models of generalists and specialists could be specified with precision. Lack of knowledge about transferability of skills from role to role, however, creates questions about this method.

All five strategies -- if done well -- are complex and arduous and eac' has advantages and disadvantages. But to conceive of teacher roles without a general school design seems to court disunity. In order to avoid the risk of creating a model irrelevant to the school, the model has to be created at a very general level -- in itself, a suspect goal.

Educational approaches derived from theories can yield marvelously unified conceptions of the teacher; but, at the same time, be applicable to only a narrow segment of the real world of teaching. The study of "model" practitioners has real-world relevance, but there is no guarantee that outstanding teachers can in fact become models. These teachers may be great, idiosyncratic artists. Then too, juries of practitioners offer down-to-earth wisdom, but will they agree on the important aspects of teaching? Nor should we take the common route. Modularizing traditional components is straight forward, but it may in the end be an empty tour de force of systems methods.

Left to ourselves we would create a working model of the school and prepare teachers for its specific roles, embedding provision for training new teachers

into the school structure. We would base part of the preparation on the theory-based models of teaching appropriate to those roles. Our preference introduces a new issue: Should programs have a repertory-orientation, a product-orientation or both?

There is a significant difference between helping a teacher develop a reper-tory of skills which he will later adapt and training him to implement specific philosophies of education. Repertory-oriented programs help the teacher in exploring teaching and in teaching himself to teach; product-oriented programs prepare the teacher to work with a particular type of curriculum using standard-ized procedures to carry out specific teaching strategies. The training program developed by Research for Better Schools for the IPI·instructional systems exemplifies product-orientation. At the close of the program teachers should be able to set up and operate an IPI program for a classroom of children. 83

On the other hand, product-oriented training programs accompanied the academic curriculum reform movement in the United States in the late 1950's and the 1960's. In these programs designed to teach teachers how to implement particular curriculums,84 teaching competencies were defined in areas like science and reading.

Neither approach, repertory- or product-orientation, is superior. The product-oriented program can prepare the teacher to carry out specific procedures leading to particular outcomes. If each school unit -- for example, a middle-sized school district -- had a product-oriented program created for its own curriculum plan, then on-the-job training could be tailored to the job situation. Product-oriented programs may present disadvantages, as compared to repertory-oriented programs, if a high degree of teacher initiative and role adaptation are desired. In repertory-oriented programs the initial repertory would tend to increase the teacher's ability to adapt to many roles. The more channeled, on-the job phase of training would concentrate on repertory for filling roles in specific schools. *Possibly preservice training should provide mastery of an initial repertory, with product-oriented training occurring at the inservice level for competence in specific school roles.*

Considering Program Design

We have been arguing that the model of the teacher defines the substance of the program by telling us what knowledge will be taught, which skills will be acquired, and how these components fit together in the world of teaching. Implicit in this argument is that any respectable model will have to be complex because it must define several domains of competence. Thus, program design is tricky. Emerging will be a program of some half a dozen major components; each component must have a considerable number of program elements. Program design involves decisions about overall program strategies, the nature of the components' inter-relationships, selection of component strategies, and the possible compatibility among them. These crucial first-stage decisions determine general substance and training process. In the second development stage program elements are created, along with devices which relate the program elements.

Examining Overall Strategy

Designs from the competency orientation have not always had an overall strategy. In fact, developers of components and specific modules have often

had a free hand in "doing their thing" -- resulting in wildly disunified programs. Still worse, some software-oriented development teams have produced objectives, materials to be read, and a simple assessment device.

Overall modes of instruction to propel the program should be selected *before* development begins (see Figure 6). Since possible models of instruction in teacher education are at least as diverse as possible teacher models, the technical and philosophical implications in choosing among them are considerable. Models differ with respect to process, roles required of faculty and students, and materials of instruction. Table 3 illustrates the use of four models of teaching which vary in directness, agent role, and materials. Even within this one illustration of possibilities, many options are available. Theoretically, one could design a component or program using one instructional model type, but it is unlikely. Considerable unity could be developed, however, if one family of models were selected as the source for the teacher model and then used to train him. This is essentially the case in Combs's proposal for teacher education, which, in treating the teacher as a personalist, uses personalistic training methods.[85]

FIGURE 6.

Stages in Design Development

1st Stage Development	Decisions General Program Strategy (Overall process guidelines) Substantive Components (Dimensions of competence) Ⓐ Ⓑ Ⓒ Component Strategies (Ways of training) Ⓐ Ⓑ Ⓒ
2nd Stage Development	Developing and Integrating Program Elements (Curriculum coordination) Continuity -- Repeated Unifying Elements Unifying Sequence -- Vertical Linkages Integration -- Across Component Linkages

TABLE 3.

Available Teacher Education Instructional Modes

Instructional Mode	Agent Role Activity of faculty-students in selecting and directing activities	Directness Instructional or nurturant	Mediation Role of structured media such as multi-media instructional system
I. Personalistic (Learner-centered, emergent, according to Rogers, Combs, Maslow, G.I. Brown)	High faculty and student roles	Nurturant	Media as support to inquiry only
II. Interactive (Group-dynamics centered, emerging with the purposes and synergy of the group	High faculty and student roles	Nurturant	Media as support to inquiry only
III. Information-processing centered (Focuses on modes of thinking and conceptual systems from the disciplines and on teacher by practicing intellectual processing)	High faculty role -- depending on mediation	Instructional	Media as an important aspect
IV. Behavior modification and cybernetic models (Focus on use of tasks and feedback schedules to induce learning)	Low faculty as facilitator	Instructional	Instructional -- systems based on applications

However, a better approach might be designing each component of a program around an appropriate instructional model or combination of models. We can imagine, for example, a program in which the teaching skills are taught through cybernetically based instructional systems -- for example, mini-courses -- in which human relations training uses an encounter group model and content components are designed around the information-processing models associated with the disciplines.

Competency-oriented teacher education is seen in some quarters as a homogenous mass of instructional systems built on behavior modification or cybernetic principles. Actually, though, the range of available educational modes necessitates a considerable array of approaches in any one program. Any neat honeycomb of programmed units is extremely unlikely -- nor is it desirable.

Rather than considering what single strategy is necessary to design all the elements of a program, the useful question is whether there will be one or more nuclear strategies. A strong philosophical preference can legitimately result in the decision to unify a program with a dominant strategy. There are three recent cases in teacher education in which a given philosophical stance dominated a teacher training approach. Combs's[86] position that teaching is a self-actualization process leads naturally to the creation of a program unified by nurturing the teacher candidate as he seeks ways to grow through teaching. The belief that self-actualization is the central purpose of all teaching leads naturally to the position that the teacher candidate would be nurtured in the ways hopefully he will be working with children. *In effect, he is taught as he will teach.*

During the late 1950's and 1960's many of the Master of Arts in Teaching programs were constructed around strategies for teaching the academic disciplines. The University of Chicago program, for example, was pervaded by the "practice of the disciplines." Teaching candidates studied their specialties with research scholars. Methods courses were given by teachers who were specialists in the discipline and who demonstrated how to practice the discipline with children. Often these specialists were also researchers. The dominant model became one of teaching the discipline by practicing its methods of inquiry. This model provided both the description of the teacher and the method used to train him.

Late in 1960 at the University of California, Santa Barbara, George Brown[87] built a model of teaching and teacher education around the Gestalt approach. Teacher candidates observed, practiced, and experienced Gestalt principles. The candidates were prepared from the same therapeutic frame of reference which they were being oriented to use.

None of the three programs was really competency-based in the contemporary sense. All, however, were pervaded by a unifying model which would hold together a diversity of program elements. But there are several examples of contemporary design in which one or two models of teaching provide much of the thrust. Focusing on individualization of instruction, the University of Pittsburgh built a performance model around a conceptualization of a teacher who could individualize instruction and who would work in schools organized for individual instruction. The central theme in the Pittsburgh program is individualization. This term covers any arrangements and procedures which ensure that each pupil achieves learning goals designated for him. The definition of individualized instruction as used in this model is the *planning and conducting -- with each pupil -- of study programs and daily lessons which are tailored to his learning requirements and his characteristics as a learner*. This definition focuses on instructional

planning for and with each student before teaching him, then teaching him according to the plan.[88]

Six features of individualized instruction programs have been identified:
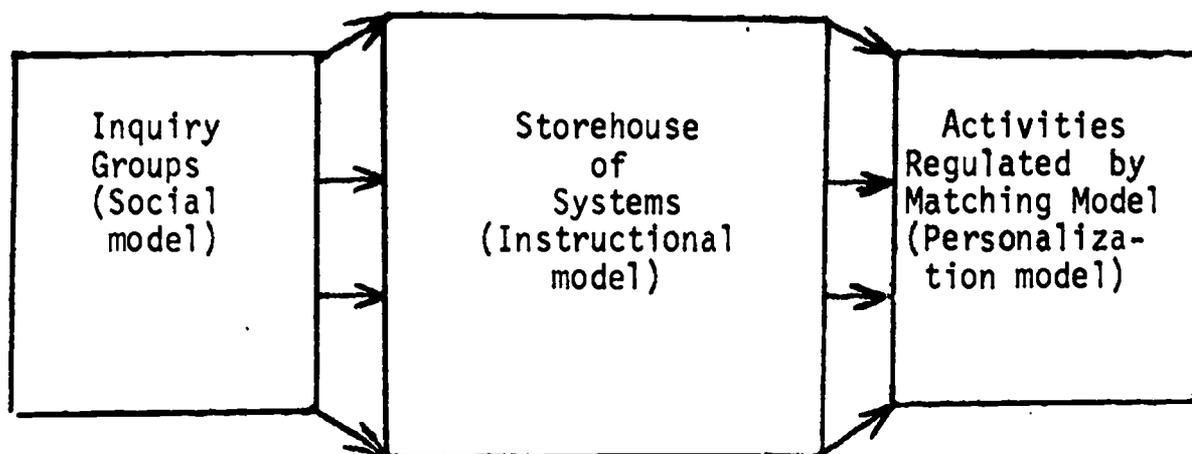
1. Instruction is organized and programmed in curricular units rather than by courses, with the units in each curricular area sequentially arranged.

2. On the basis of achievement pre-tests and diagnosis of learner characteristics, lessons are tailored to the pupil rather than to the group.

3. Several modes of individualization are employed singly or in combination, to fit instruction to the individual pupil. Learning goals vary from pupil to pupil, as do learning materials and equipment, the learning setting (independent study, pupil team, tutoring by the teacher, small group working without the teacher, large group), instructional techniques, assignment of different students to different teachers, and the student's rate of advancement through the curriculum.

4. Each pupil is expected to master a learning task before proceeding to the next; mastery is determined by a unit post-test. The criterion score for mastery is empirically determined in relation to performance on subsequent tasks.

5. Teachers offer pupils help chiefly on an individual basis, and are always available for consultation.

6. The pupil conducts most of his learning independently of the teacher, employing self-direction.

The Teachers College program at Columbia University uses several strategies with one theme: preparing teachers who will be innovators. One strategy designs the social system, a second the support systems, and a third matches program elements to the personalities of the teacher candidates into small inquiry groups for study of each other's teaching and for organization of activities. The inquiry groups work their way through sets of instructional systems, which mediate much of the substance of the program. The faculty which originally arranges the groups later serves in a facilitator role for the candidates' self-directed activities.

Strategy two -- the support systems -- maintains sets of self-administering multi-media instructional systems in a storehouse and supports several of the components. Table 4 indicates the focus and purposes of the systems. The third strategy -- the matching model -- uses conceptual systems theory to provide a model for modifying the structure of learning activities to allow for personality differences among the teacher candidates.[90]

All three strategies -- the social model of the inquiry groups, the cybernetic model used to design the instructional systems, and the matching model -- pervade the program with design principles for unifying faculty and student activities and for solidifying a variety of diverse program elements. (see Figure 7.)

FIGURE 7.

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┌──────────────┐      ┌──────────────────┐      ┌──────────────────┐
│   Inquiry    │      │    Storehouse    │      │    Activities    │
│   Groups     │ ──►  │       of         │ ──►  │  Regulated  by   │
│   (Social    │ ──►  │     Systems      │ ──►  │  Matching Model  │
│    model)    │      │  (Instructional  │      │  (Personaliza-   │
│              │      │     model)       │      │   tion model)    │
└──────────────┘      └──────────────────┘      └──────────────────┘
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The selection of the overall program strategy or strategies expresses the philosophy of the teacher educator. In each of the above design examples an overall strategy expresses the value priorities of the designers and their beliefs about the best ways to prepare teachers. Pittsburgh designed a conception of a teacher as an individualizer which tries to prepare him in a manner consistent with the way its teacher educators hoped he would operate. The program itself had to manifest the competencies the teacner was being taught. The Teachers College program uses a set of strategies which design social systems technical support, and personalization of the program. Significantly, its model of the teacher is also pluralistic; the teacher himself is expected to learn and use a range of strategies.

Careful selection of a few basic training methods or teaching models can have a powerful unifying effect on a program, especially when they are chosen to make a clear statement of the philosophy of the program planners. Where the training model reinforces the model of the teacher, the results can be electric. For many years tiny Bank Street College has successfully prepared teachers in the manner it was hoped they would teach. It further operates a school demonstrating that philosophy.

Selecting Components

We have raised some doubts about constructing components of competency-based programs from the traditional components of teacher education chiefly because these components were designed for indirect training under a philosophy that training should provide general knowledge. Competence would then have to be developed by the individual teacher in the field *after* his formal training. Therefore, instead of being trained for specific competence, he would develop his own configuration on site.

On the other hand, the competency orientation appears to require selecting a model of the teacher flexible enough for personal variation and creating components directly related to the model. This does not imply that a teacher should be prepared only for one role or be exposed merely to the substance related to the role. But it does say that the substance necessary for competence should be directly taught and clearly related to classroom performance. One of the most alienating features of traditional training programs is that the teacher does not see how to use the educational foundations and other knowledge he has spent four years absorbing. Under the competency orientation a clear
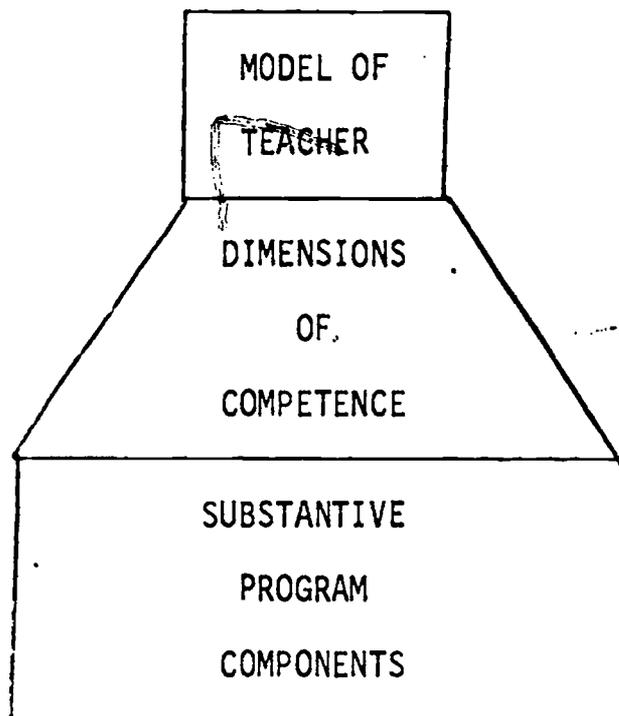
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TABLE 4.

Instructional Systems from the Teacher Innovator Program

Domain of Competence (Purpose of System)	System Focus (Aspect Emphasized)			
Interaction Analysis	Theory	Initial Competence	Application for Analysis of Teaching	Application in Feedback
Teaching Skills	I Structuring (Directing & negotiating activities.	II Modulating (Managing cognitive tasks)	III Focusing (Managing content)	IV Feedback (Rewarding correcting, reflecting)
Teaching Models	I	II	III	IV
Behavioral Instructional Planning	Analyzing Instructional Objectives	Writing Instructional Objectives	Selecting Objectives	Selecting Appropriate Models of Teaching
Curriculum Alternatives				
Social Studies	A System for Analyzing Alternatives	Acquaintance with Approaches	Demonstration of Approaches	Selection from Alternatives
Reading	A System for Analyzing Alternatives	Acquaintance with Approaches	Demonstration of Approaches	Selection from Alternatives
Science	A System for Analyzing Alternatives	Acquaintance with Approaches	Demonstration of Approaches	Selection from Alternatives
Mathematics	A System for Analyzing Alternatives	Acquaintance with Approaches	Demonstration of Approaches	Selection from Alternatives
Philosophical Orientation	Personalists	Interactionists	Information Processors	Cybernetics & Behavior Modification
School Organization & Architecture	Designing School Program	Designing Learning Centers	Team Teaching	School Plant Design

relationship should exist between the program components which enable competence (provide background knowledge) and those which teach it directly (provide the skills of teaching). This relationship is best achieved, we think, by deriving the professional components directly from the model of the teacher and building them around dimensions of competence (Figure 8).

FIGURE 8.

Model and Component Relationship

```
        ┌─────────────┐
        │  MODEL OF   │
        │  TEACHER    │
       ╱└─────────────┘╲
      ╱   DIMENSIONS     ╲
     ╱       OF.          ╲
    ╱     COMPETENCE       ╲
   ┌─────────────────────────┐
   │                         │
   │       SUBSTANTIVE       │
   │                         │
   │         PROGRAM         │
   │                         │
   │       COMPONENTS        │
   │                         │
   └─────────────────────────┘
```

Thus, the program components will be connected directly to the conception of the teacher and the roles he is expected to fulfill by the end of his training. If the components are not closely related to the model of the teacher, the program elements may very well teach skills and knowledge which do not add up to a functioning teacher, remaining instead discrete and disconnected elements of traditional programs.

Each component can, of course, incorporate several models of teaching in its design. For example, it is possible to use a group-dynamics model for organizing students to confront the problem of acquiring teaching competence and, at the same time, back their inquiry with instructional systems, such as mini-courses -- for acquiring the skills. The completed program should result in an array of components for employing faculty and materials in diverse ways. The component elements themselves will be quite varied -- some with a series of fixed-frequently-evaluated elements and others as human relations training elements which develop as a whole and need less frequent assessment.

Some models of teaching are obvious selections for components. For example, interactive -- models especially T-group -- were created as designs for human-relations training. Many of the information process models are

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directly designed to teach the academic disciplines. Cybernetic models were developed for skill-training by industrial and military trainers. The more compatible the component strategy is with program substance, the greater the potential organic unity of the program. An elegant but economical design results if components are directly related to the model of the teacher and if the methods they use are consistent with the substantive demands of the components.

Creating Unity Among Program Elements

We must bear in mind that even the most coordinated program design must have many elements. A competency-based program has hundreds of activities which have to be coherently inter-related to each other. We have suggested four steps for program unity: developing a unified model of the teacher; selecting an overall program strategy; deriving components directly from the model of the teacher; and selecting component strategies which are consistent with the substance of the components.

We now turn to the second stage: developing program elements which are integrated. Integration creates a harmonious whole so that program elements fit together, have unity, and function coherently in the life of the student or trainee. To achieve unity we have to organize the *entire* program through some comprehensive plan; it is not enough to identify and develop program elements.

Program unity has several manifestations which appear in terms of relations among the program elements, the interrelationships between program and the schools and society, and the life of the teacher candidate.[91] Internal unity appears through interrelationships among program elements, philosophical consistency, and integration brought about by assessment, support systems, or management systems. Interrelationships among elements occur in a variety of ways. Tyler has described curricular organization in terms of *sequence* or elements building on one another; *continuity* or the repeated manifestations of a certain skill, knowledge or value; and *integration* or mutual reinforcement by program elements.[92]

We find sequence when ideas introduced in one program element or module are spliced up and extended into another, then put into practice in still a third. Figure 9 shows a sequence of activities for a cluster of modules in the Syracuse program. Each module in the instructional system adds something to the earlier ones and the whole makes a coherent series of steps toward competency.

When a particular concept, value, or skill is reiterated in a set of program elements continuity is present. For example, in the 1972-1973 Teacher Innovator plan, a special category system was used for studying interactive teaching, providing a frame of reference throughout many of the program components and unifying their elements. The system is used for studying one's own teaching and the teaching of peers and experienced teachers; it also examines schools representing different philosophies of education. Teacher candidates use it as they practice the teaching skills and strategies, which constitute the interactive teaching core of the program. A time line of its use appears in Figure 10.
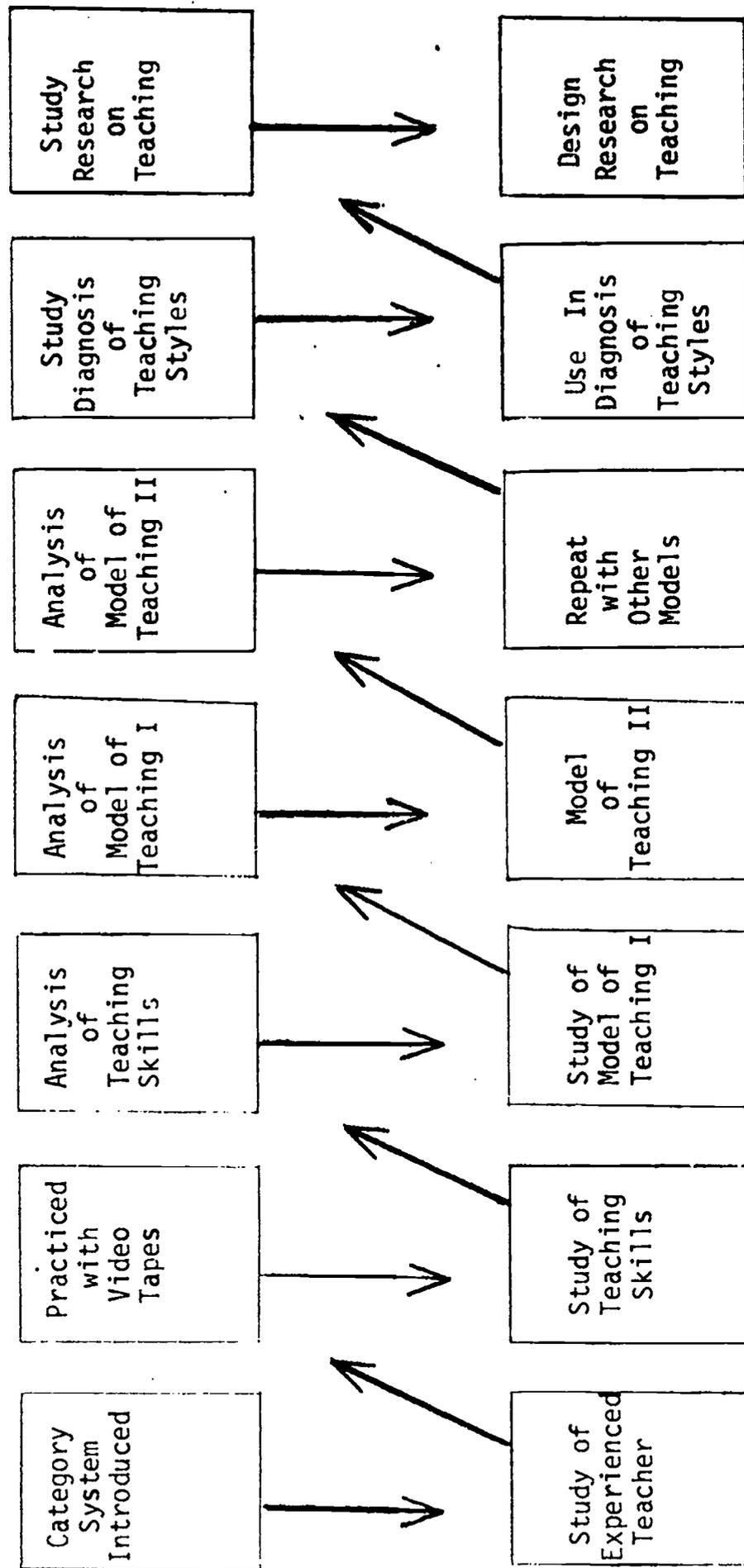
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FIGURE 9.

Modular Flow Chart TTP-16
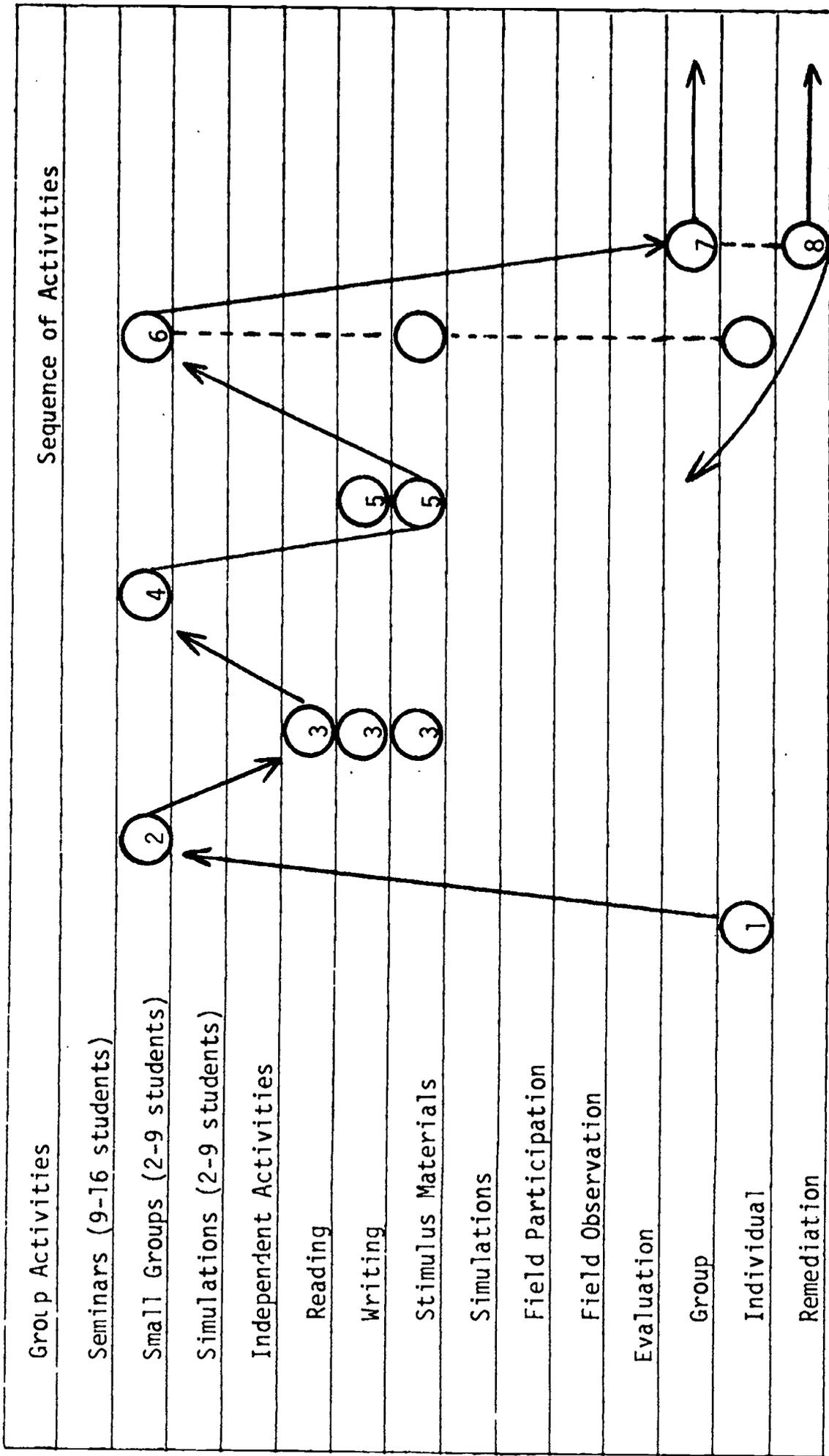
Source: Syracuse University, *Specifications for a Comprehensive Undergraduate and Inservice Teacher Education Program for Elementary Teachers* (OE 58016) Washington, D.C.: U.S. Office of Education, 1968, p. 282.

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FIGURE 10.

Use of Interacting Analysis System in Elements of the Teacher Innovator Programs
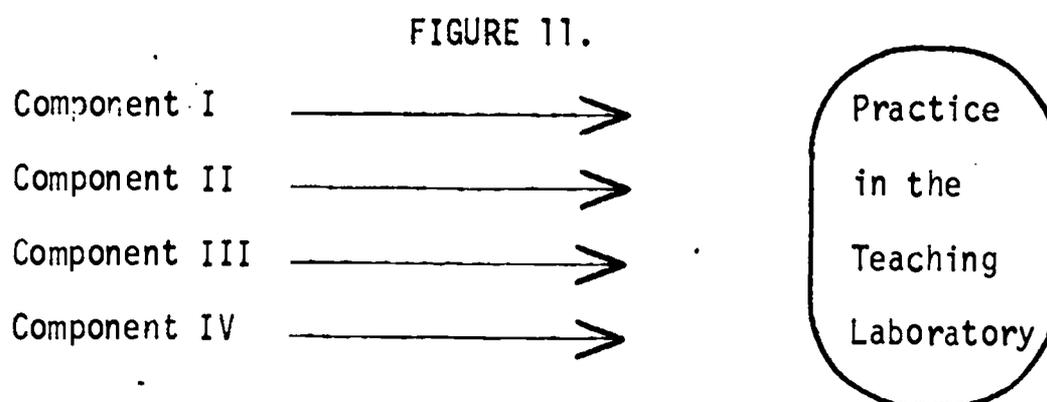
Although the Teacher Innovator Program has several other bases for continuity, the Interaction Analysis System unifies the program by bridging theoretical and clinical study. It can:

- introduce the behavioral analysis of teaching,
- study experienced teachers' styles
- study the school environments with different educational philosophies,
- study self and others practicing teaching skills,
- study self and others practicing a variety of models of teaching and
- design and carry out specific experimental studies of teaching.

Thus the system's language, frame of reference, and use as a data collection instrument permeate much of the program.

Integration among the program elements is more horizontal than vertical: it operates among program elements occurring relatively close together in time. In the Comfield program design[93] a teaching laboratory was designed as a setting to integrate the learnings from a variety of components. The teacher candidate's practice in the laboratory is so arranged that he can try out what he has been learning about children, subject matter, psychology, and the operating of schools. Figure 11 diagrams the relationship of the laboratory to the several components.

FIGURE 11.

Component I $\longrightarrow$

Component II $\longrightarrow$

Component III $\longrightarrow$

Component IV $\longrightarrow$

Practice in the Teaching Laboratory

Thus, as each component provides knowledge and/or skills to the teacher candidate, he has an opportunity to integrate the new information or capacity into his teaching style.

Sequence, continuity, and integration result from deliberate program-planning, not from chance relationships. Especially in large, complex training efforts, they are achieved only through a thorough conceptualization of the entire program. Then, principles of sequence can operate to unify components and phases of the entire program by specifying how elements build on one another. The bases of continuity unify program elements through time by reiterating core concepts, values, and ways of thinking and by integrating devices to unity program elements.

Recognizing Natural Unifying Sources

The nature of teacher education provides several natural sources of unifying material. The act of clinical performance, the nature of assessment, and the social system of the program all provide bases for continuity, sequence, and integration. Clinical performance is an anchor for a competency-based program.

Conceptualize a performance-based program as a large funnel in which the program
elements progressively narrow their focus toward the performance of the person
in the clinical situation. At the bottom of the funnel, the teacher is inter-
acting with student. At the very top of the funnel are program elements in which
he learns the knowledge, understanding, and general human relations skills which
will -- in the terms used at the University of Georgia -- have an *"enabling"*
effect on his teaching behavior. Part of the way down the funnel is instruction --
in particular teaching strategies and skills, enabling the candidate to operation-
alize the theoretical and substantive learning of the level above. Finally,
there is microteaching practice -- work in the teaching laboratory -- where the
teacher tries to put together knowledge and skills with small student groups
under controlled situations until, at last, he goes out into the field, reaching
the bottom of the funnel.

It may be, in fact, useful to conceptualize, as in Figure 12, a program as
a series of funnels that relate to competence in particular modes of learning.
In this sense, teacher education necessarily works from the abstract to the
concrete. The candidate has to learn the theories of teaching and the substance
that might be taught. He needs to comprehend the settings in which teaching
could and actually does go on so that he can begin to develop the skills and
strategies for those settings. And finally, he will integrate them in the
clinical situation -- a natural place in which to integrate learning from all
components. For example, the Teacher Innovator utilizes six phases of a
"contact laboratory" to anchor components to the clinical acts of teaching.
Table 5 outlines the six phases of the contact laboratory and the components
they anchor.

FIGURE 12.

Enabling
Components

Clinical
Competence

Integrated

Performance

in the

Clinical

Situation
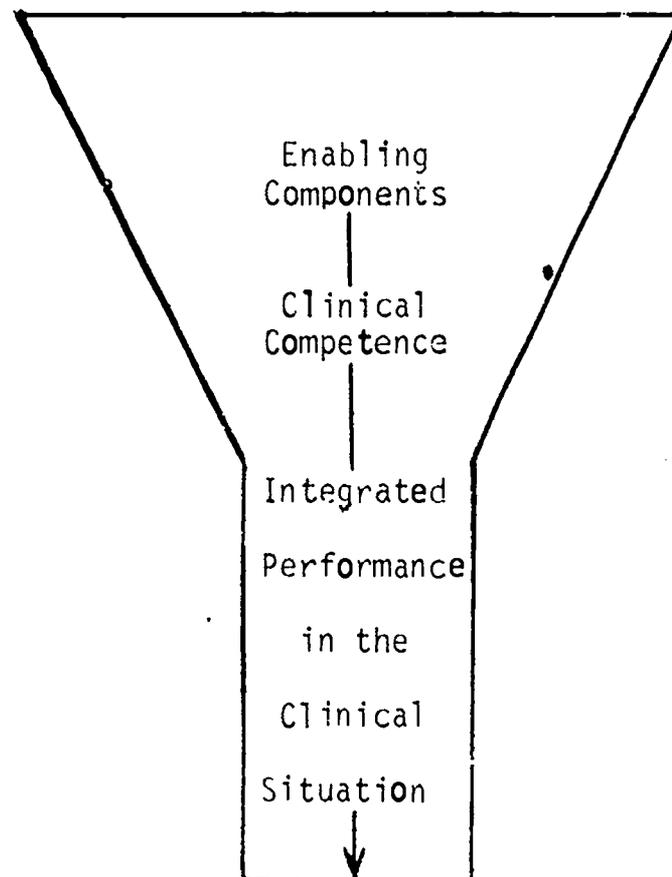
Practice in the Field

TABLE 5.

Six Phases of Contact Laboratory and Components

Phase	Genre	Activities	Components Served
One	Experiencing the School	Teacher Aide: Analysis of School and Classroom	Institution-Building, Innovating, Teacher-Scholar
Two	Tutorial and Small-Group Teaching	Experimenting with Teaching Strategies	Institution-Building, Teaching Strategies, Teacher-Scholar Innovator
Three	Unit Study	Experimenting with Unit Teaching	Teaching Strategies Institution-Building, Teacher-Scholar, Innovator
Four	Experience in Inquiry School Teams	Studying School as an Inquiry Center	Innovator, Institution-Building
Five	Operating Own School Program	Experimenting and Studying, Teaching and Learning	All Components
Six	Internship	Experimenting and Studying, Teaching and Learning	All Components

By weaving clinical activities into all the components, the nature of teaching helps to unify the program elements. The clinical laboratory provides a setting in which the teacher candidate integrates into teaching acts what he learns from small program elements. Thus as he learns a technique, he can apply it in his clinical setting. As he learns a skill, he can practice it there.

The assessment system provides a second source of integration. A real problem in constructing a modular curriculum is that students might mechanically achieve most or all the specific objectives of the individual modules and even develop particular competencies which relate to general professional competency, but would be unable to put it all together. This is analogous to a physician with a broad knowledge of disease, diagnosis, and treatment who cannot synthesize his knowledge and skills to treat a particular patient. He would have all the competencies to be a physician *except* the vital capacity to integrate those competencies into a professional whole.

We can imagine a similar dilemna with the teacher. Hence, it becomes important to organize training and assessment so that they focus on integrated competencies or bring these competencies to bear on problem situations. Training and assessment can be organized so that the trainee meets situations in which he has to integrate specific competencies in general problem-solving situation.

Such an arrangement can tie the individual program elements more closely together. Using the funnel analogy, we need to think of training in specific competencies as the input at the top and then see assessment directed at what emerges at the bottom in the clinical or field-setting. Viewed in this light, assessment becomes an evaluation for determining appropriate competencies in a given performance situation.

The present version of the Teacher Innovator Program incorporates teaching tasks to assess integrative capacity at regular intervals through the program. The teaching task assesses whether the teacher can use interaction analysis to study his teaching, formulate behavioral objectives, select an appropriate model of teaching, and carry it out with children. Not all of these are examined each time a learning task is employed, but any combination of competencies can be examined. The regular use of the general teaching tasks provides a source of unity by focusing the attention of the students and faculty on integrated performance outcomes of program as well as on the specific outcomes embedded in the instructional systems that provide most of the program substance.

The curricular system, the technical support systems, and the social system of a teacher education program provide unique kinds of unity to the overall program.[94] We have been emphasizing that a richly-developed program offers an array of instructional modes which have to be backed up by complex sets of technical support systems. In a program of any size, the social support system needs sound development to help students work their way through the myriad of instructional possibilities and cope with the complexity of schooling and the problems of adjustment to a work situation. The social system of a program develops unity among trainers, trainees, technical advisors, school personnel, and others who become involved. There is probably no more powerful humanizing influence in a training program than to have a well developed and warm social situation.

Many of the humanistic questions about performance-based teacher education will be solved by the way the social system is developed or allowed to develop. Students are not dismayed by competency-oriented instruction itself, although they are stressed by instruction which requires them to stretch beyond their present patterns of behavior. What does upset students is the prospect of a series of coldly administered, mechanistic modules. The solidarity of the community of the faculty and students has much to do with the easing of this stress by developing a feeling of meaningfulness and preventing mere mechanism. A chilly social system alienates students so that they come to view the exercises of mastery as simply competitive excursions in academia. When the community is warm, mutually supportive and when the members of the community help one another look at their teaching and work to improve it, the reaction is positive. To the extent that faculty and students share a series of values in their understanding of the goals and functional requirements of the program, unity is developed and nurtured.

Learning to teach has to be done in an atmosphere of kindness and mutuality, with each person reaching out past the bounds of his present loneliness and ignorance. A good substantive design enhances community. Under such conditions the components of a performance-based curriculum should become the substantive matrix within which positive feelings about self and community develop. *Substantive unity, in other words, contributes to community.*

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Matching Goals and Means

The movement toward performance-based teacher education has provided an unparalleled opportunity to build teacher education programs of unity and power. The task, however, will not be easy. The competency orientation is not a license to build loose program elements out of the traditional components of teacher education. If that conception prevails, competency-based teacher education will flare briefly in the manner of a fad or fashion and then disappear.

If designers accept the complexity of creating a program, then a vital, enhancing project lies ahead of them. The tasks we have outlined in this paper are not only the basis for program design, but for building teacher education as a scholarly and humanistic field. The alternatives for developing the model of the teacher represent the methods for identifying teaching competency. The study of program design -- generating program strategies, components, and component strategies and unifying plans -- constitute the basis for scholarship in training methods.

The philosophical questions, though, remain ahead: What kind of teaching will be promoted and by what means; also, what kind of statement will be made through program design? These questions are the link between the humanistic concerns of our time and the design of the teacher education.

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