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ABSTRACT

This essay proposes a responsive research agenda to examine relationships between supervisory inquiry and practice on one hand, and teaching and learning on the other. The agenda first calls for policy-oriented research that examines the implications of state-mandated educational changes on supervisory practices and commensurate teaching and learning. Legislated learning and the career ladder are discussed as examples of trends toward centralization, respectively, of curriculum and personnel policies. In both instances, research is needed to inform the decision-making process at the macro level. The second major focus of the agenda is a call for research that seeks to scientifically match existing and evolving supervisory techniques and practice models to unique professional practice situations. Examined as examples are (1) bureaucratic versus professional evaluation of teaching and (2) contingency versus "one best way" approaches to supervision and teaching. Intended here is micro level research designed to advance further the science and art of supervision, by providing cognitive "maps" that will help supervisors deal with the full range and variety of practice situations. References are included. (TE)

INSTRUCTIONAL SUPERVISION: A RESEARCH AGENDA FOR THE FUTURE

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The research agenda I propose has two themes. First, it responds to the whirlwind changes in educational policy now taking place throughout the United States. Second, it examines the need to match available supervisory technology to situations of practice. This is an important time for research and practice in supervision. A time of opportunity or missed opportunity depending upon the direction of future inquiry and how this inquiry influences both broad policy development and specific professional practice.

What are the domains of supervisory inquiry and practice? Supervision exists to enhance the teaching and learning process as it unfolds. Its domains include matters of curriculum, classroom organization, teaching, supervision, evaluation, and professional improvement as they apply specifically to teachers at work. Concern for teachers at work, for the actual unfolding of classroom events and for the teaching and learning process in action are what differentiate the subject matter of supervision from curriculum and administration. These distinctions are not made to rank various domains of the educational enterprise or to nitpick over definitions but to highlight the criticalness of

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supervisory issues, subject matter and practices to teaching and learning. Relationships between the two are central and direct and it is within this context that I propose a responsive research agenda with two major emphases:

Research which examines the implications and effects of recent and emerging state mandated educational changes on supervisory practice and commensurate teaching and learning. Legislated learning and the Career Ladder will be examined as examples. Intended here is policy oriented research which informs the decision-making process at a macro level.

Research which seeks to scientifically match existing and evolving supervisory technologies and practice models to unique professional practice situations. Bureaucratic versus professional evaluation of teaching and contingency versus "one best way" approaches to supervision and teaching will be examined as examples. Intended here is micro level research designed to advance further the science and art of supervision.

Legislated Learning

This analysis begins by examining recent policy developments and their consequences for supervision, teaching and learning. There is a trend toward greater centralization in deciding what

will be taught in schools, when, with what materials, to whom and for how long. During the 1970's approximately two-thirds of the states enacted policies that sought to standardize and regulate teaching behavior (Darling-Hammond, 1984: 14). States have been even more active during the 1980's. Texas, for example, recently enacted legislation which authorized the state education department to determine the "essential elements" to be taught to every child in every subject, for each of the elementary school grades and each of the subject matter-course areas of the secondary school (HB 246, Chapter 75, State Board of Education Rules for Curriculum). The required essential elements come complete with recommended allocations of time to be spent in teaching.

An important benefit of this and similar education legislation is that identified elements can comprise a useful set of subject matter guidelines. Teachers, as professional decision-makers, could then select teaching objectives and subject matter concepts from this set in response to their estimates of student abilities and needs and of other characteristics and features from the local teaching context. Unfortunately, legislation of this type can be interpreted and implemented in ways that remove from teachers degrees of freedom for diagnosing, determing and deciding. Instead, teaching and learning decision become programmed. The teacher's role changes from that of professional diagnostician and decision-maker to bureaucratic

follower of directions. Some experts believe that detailed prescriptions will reduce the ability of teachers to teach effectively (Wise, 1979).

It is generally assumed that teaching is a fledgling profession. Professionals and bureaucrats operate quite differently at work. The work of bureaucrats is programmed for them by the system of which they are a part. The work of professionals emerges from an interaction between available professional knowledge and individual client needs. Webster, for example, describes a bureaucrat as an official following a narrow, rigid and formal routine. By contrast, professionals are assumed to be in command of a body of knowledge which enables them to make informed judgments in response to unique situations and individual client needs. Essential to professionalism is that sufficient degrees of freedom exist so that professionals are able to use informed judgements as they practice.

Many legitimate and desirable reasons exist for the states to be involved in matters of legislation and many alternatives are open as they set standards, provide guidelines, promote equity and ensure accountability. But the problem lies in how far the states should go and the consequences of going too far. Providing leadership to local districts is an important responsibility of the states. Legislative learning to the point of bestowing a system of bureaucratic teaching is quite another matter. The consequences of creeping bureacracy in the classroom on the

teaching-learning process is an important area of investigation for those in supervision.

Some theoretical strands which could guide such inquiry already exist. It is not unreasonable to assert, for example, that when curriculum and teaching decisions are programmed in a fashion which diminishes the influence of students and teachers, impersonal, standard and formal learning goals are likely to dominate; teaching and learning will likely become "teacher-proof" and "student-proof"; instructional leadership is likely to be discouraged as teachers spend time managing the learning process by monitoring and inspecting, regulating and measuring; and commitment to teaching and learning by both teacher and students is likely to be lessened. Many experts maintain, for example, that the consequences of bureacratic teaching are more emphasis on school than student-defined meanings as learning unfolds (Coombs, 1959; McDonald, 1964), and less emphasis on intrinsic motivation for learning (Starratt, 1971).

Academic learning time is regarded by teaching effectiveness researchers to be linked to increases in student achievement (Fischer, et.al., 1980). The amount of time students spend in learning, particularly the intensity or quality, is a function of the presence of intrinsic motivation (Levin, 1984). Further, Nyberg maintains that student learning is increased when teaching is characterized by the interaction between students' personal meanings and the information provided (Nyberg, 1971). It is clear

that student achievement is associated with such factors as balanced emphasis on personal and school defined meanings and learning outcomes; and on students being intrinsically motivated to learn. These factors are not likely to be encouraged by bureaucratic teaching.

Teachers, teaching and learning are at the crux of supervisory inquiry and practice. However, unless things are right with teachers little can happen by way of teaching and learning. What, therefore, are the consequences of legislative learning and bureaucratic teaching on motivation and commitment of teachers? Is there a link between teacher motivation and commitment and school effectiveness? In effective schools teachers are more committed, work harder, are more loyal to the school, and are more satisfied with their jobs. It is clear from the work motivation research (i.e., Herzberg, Mausner and Synderman, 1959; Hackman and Oldham, 1976; and Peters and Waterman, 1982) that these highly motivating conditions are present when workers find their worklives to be meaningful, sensible, and significant and when they view the work itself as being worthwhile and important; have reasonable control over their work activities and affairs and are able to exert reasonable influence over work circumstances; and, experience personal responsibility for the work and are personally accountable for outcomes.

Meaningfulness, control and personal responsibility are

attributes of teachers functioning as "Origins" rather than "Pawns." According to de Charms (1968:2732-2734)," an Origin is a person who perceives his behavior as determined by his own choosing; a Pawn is a person who perceives his behavior as determined by external forces beyond his control (274)." Personal causation is an important dimension of motivation in de Charms' highly regarded theoretical view and in motivational research which stems from this tradition (i.e., Rotter and Mulry, 1965; Rotter, 1966). Persons strive to be effective in influencing and altering events in situations which comprise their environment. They strive to be causal agents, to be Origins of their own behevior. Personal causation represents motivational propensity which, when activated, results in motivated behavior (de Charms, 1968:269). To what extent does legislative learning and bureaucratic teaching threaten personal causation among teachers by creating work conditions more associated with Pawn feelings and behavior? Do teachers feel more like Pawns than Origins? Does this feeling result in decreased attachment from their jobs? What are the consequences of these feelings on teaching and learning?

In sum, professionals are responsive to unique situations; they take their cues from the problems they face and the clients they serve. They draw upon the wealth of knowledge and technology available to them as they create professional knowledge in use in response to client needs. Bureaucrats, by contrast, are not driven by client problems but by the technology itself. They are

appliers of rules, regulators of formats, responders to directions and managerial implementers. They strive for a one-best-way to treat all cases and apply formal procedures in pursuit of standard outcomes. It is in this sense that legislative learning and bureaucratic teaching can encourage Pawn feelings and behaviors among teachers and students and can attribute to less effective learning.

If assertions regarding the link between legislated learning and creeping bureacracy in the classroom are correct and if the consequences of creeping bureaucracy are less teacher motivation and less effective teaching and learning, American education is headed for trouble. More attention should be given to these issues as future research agendas in our field are planned. Needed is the establishment of a research program within the National Institute of Education, or perhaps under the auspices of AERA, which would serve as a watchdog, similar to the Food and Drug Administration. As educational "medicines" are invented for treating the ills of schooling they would be carefully tested to ensure that no "side effects" or unanticipated consequences exist which might have negative effects on teachers, teaching and learning. Once determined safe from harmful side effects, treatments would be made available for prescription by local educational agencies.

The Career Ladder

If present trends continue, the concept of career ladders for teachers will be considered by most state legislators before the end of this decade, and more and more of these states will mandate career ladder plans. Different conceptions and interpretations of the career ladder lead to different consequences for teachers as professionals, for the status and functioning of supervisory roles and responsibilities and for teaching and learning. Ideally, the career ladder is a system for sharing school responsibilities with teachers and for enhancing their roles as professional partners and school leaders. This system provides for teaching roles to be upgraded in challenge and responsibility as increases in professional skill, competency, and commitment warrant. Merit salary increases are allocated to teachers to reflect this additional responsibility. Within the career ladder, appraisal determines who is meritorious for advancement. Advancement leads to enhanced leadership roles and more responsibility. Leadership roles and responsibility result in salary increases. Professional responsibility is more critical to the concept of career ladder than is merit pay. Easier, simpler, and less expensive means are available for accomplishing only merit pay objectives.

So far so good. Let's assume that career ladders are implemented as they are intended. As teachers advance, they will take on more responsibility for helping each other. Less experienced teachers will be mentored and supervised by master-teachers. The decision-making structure of schools will

change as higher career level teachers take fuller charge of the professional affairs of teaching and learning. What will the supervisors be doing in the meantime? Will supervisors still be necessary or will their roles, functions and responsibilities be subsumed by expanded teacher roles,functions and responsibilities? Should the scholarly community within supervision be thinking less about supervisory roles and more about supervisory processes which might be shared by a variety of roles? These are questions worth asking and worth investigating.

Let's pursue another track. What will happen to the concept of career ladder and how will it effect teaching and learning if it is conceived as primarily a merit pay plan with little change in roles and responsibilities as teachers advance? I predict that what promises to be a system to promote cooperation, helping and sharing among teachers will become a competitive system likely to encourage and increase privatism and isolation.

Embedded in this theme are a number of research issues. Presently, teaching is a profession characterized by isolation (Waller, 1932; Bidwell, 1975; Lortie, 1975). Typically, teachers teach alone and have little opportunity to interact with colleagues about matters of teaching. Susan Rosenholtz (1984) identifies isolation as one of the major impediments to school improvement. Her recent review of research on this topic leads her to conclude that in isolated settings, teachers come to believe they alone are responsible for running their classrooms. To

seek advice or assistance from their colleagues, under these circumstance, is viewed by them as an open admission of incompetence. Most learning for teachers must of necessity occur through trial and error. One alarming consequence of trial and error learning, she maintains, is that teachers' limits for potential growth depend heavily upon their own personal ability to detect problems and to discern possible solutions. An additional consequence is that teachers have few role models of good teaching to emulate and are likely to rely more on models they recall from their own student days than to seek models of teaching excellence among their contemporaries (Rosenholtz, 1984).

A competitive career ladder system, I assert, not only promises to isolate teachers but to divide further their roles and functions and indeed the cultures of teaching and school administration. Master teachers, under a competitive system, will assume a greater array of duties delegated to them by administrators. Their authority will be delegated rather than felt and, I predict, will be less acceptable to teachers with whom they must work. Under a competitive system, teachers advance in rank within a management structure solidly in control of administrators.

Lieberman and Miller (1984) point out that the rule of "privatism" among teachers is part of the culture of teaching. Privatism, they maintain, means not sharing perceptions and experiences about teaching, classes, students, and learning.

Competitively based career ladder plans promote even more isolation and privatism and further feelings of isolation with predictable consequences on teaching and learning.

The concept of career ladder is moving rapidly across America's educational landscape. How it is interpreted and implemented makes a difference for teaching and learning. Since improving teaching and learning is at the heart of the business of supervision, the career ladder should rate high on our future research agenda.

"One Best Way" Evaluation of Teachers and Teaching

Let's turn again to issues of bureacracy and professionalism and how these values influence supervision and evaluation of teachers and teaching. Schools have a responsibility to organize themselves in an orderly and efficient manner, to provide fair and equitable treatment and services to employees and clients, and to develop quality control guidelines and product specifications which ensure their accountability to the public. To this effort they adopt bureaucratic principles of organization and operation. These principles are characterized by standardization, specialization and clear lines of authority (Blau and Scott, 1962). Certain work routines are established, common outcomes are agreed to and rules and work procedures are developed to promote standardization. The work to be done is broken up into smaller and more efficient parts and is assigned to specialists. Lines of

authority are established with those at the top being responsible for the supervision and evaluation of those below. These characteristics of schooling are essential, and in this sense schools are bureaucratic (Abbott, 1969).

But schools and teaching are professional, too (MacKay, 1966; Howsam, et.al., 1976). Professional work values include an emphasis on unique client problems and needs, the specifics of the problem at hand and the invention and tailoring of responsive treatments. Professionals rely heavily on expert authority which emerges from thorough knowledge of their science or art and keen diagnostic and analytical skills. This authority allows them to apply knowledge uniquely to situations of practice which invariably differ. Professional knowledge is created in use as professionals choose from among what is known and adopt what is known to develop unique treatments in response to variable problems (Sergiovanni, 1984a). Bureaucratic knowledge, by contrast, is organized into set categories and routines for standardized and systematic application by bureaucrats. Emphasis is on applying standard treatments to standard practice problems. Bureaucrats are expected to respond exactly the same way to specific classes of problems. Within schools, bureaucratic and professional characteristics, expectations and orientations live side by side in a state of tension (Corwin, 1965). Maintaining a delicate balance between the two orientations is a requirement for effective school administration (Sergiovanni and Carver, 1973).

In recent years the balance between bureaucratic and professional orientations in schools has been upset. Legislated learning, described earlier, is one example of a movement which upsets this balance and provides for bureacracy to creep into the teaching and learning process. Perhaps more serious than legislated learning are movements which give greater emphasis to bureaucratic than professional values in evaluation. In Texas, for example, the mandate for career ladders provides that a state-developed rating scale be used to evaluate teachers for advancement. Florida, South Carolina, Georgia, California and dozens of other states already have under development or consideration systems for standardized and uniform evaluation of teachers and teaching.

Bureacratic evaluation must be context free if it is to treat all teachers, students and teaching situations the same. It assumes that "one best way" exists; that this "one best way" can be captured in a rating scale; and that the rating scale can produce an accurate evaluation by observing teachers teach. Further, bureaucratic evaluation assumes that a fixed set of learning outcomes can be identified which is suitable for all schools, teachers, and students, and that inferences regarding these outcomes can be made by use of a uniform rating scale.

The assumptions themselves represent categories of researchable questions. More specifically, what are the consequences of bureaucratic evaluation for teachers, teaching

and learning? Reasonable assertions, all researchable, are: bureaucratic evaluation will emphasize generic teaching competencies and skills; these competencies and skills represent only the common denominator which should be evident in all teaching and learning; at the very least, common denominators are likely to be trivial and at the very best to be only indicators of minimum basic competence in teaching; with respect to career ladders, bureaucratic evaluation may be suitable for placing a person on an initial step, but it is not suitable for determining who should advance to higher levels. Master teachers, for example, are presumed to display levels of professional knowledge in their practice beyond that which could be characterized as minimum competence, and these qualities cannot be adequately assessed by bureaucratic means.

Bureaucratic evaluation is "measurement" rather than "evaluation oriented." Measurement requires that goodness of fit or worth be determined against a fixed standard. In measurement, this standard, and the rules of thumb, procedures and protocols for collecting data are more important than the person doing the measuring. Ideally, the measurement procedure should be "person-proof" in the sense that each person who does the measuring should reach the same conclusion. By contrast, evaluation involves rendering an informed opinion about the worth of something. Professional judgment is important in evaluation. Judgments are bound in a particular teaching context and reflect

the values and beliefs which define a particular educational program, school, and community (Dewey, 1958). Of interest in judgmental evaluation are specific teaching situations and events, particular teachers and students and the actual teaching and learning issues, understandings and meanings which emerge from the teaching at hand. Evaluation information is important in rendering judgement. Sometimes, evaluation information comes from measurements using a standardized rating scale, but sometimes it comes from other sources. Regardless of its source, the source itself never renders the decision. Instead, information is used to inform the professional judgment of the evaluator.

Should the trend toward bureaucratic evaluation continue, important questions are raised about supervisory purposes, roles and functions. In bureaucratic evaluation, for example, one need only master the ins and outs of data collection which are associated with a particular instrument in order to be successful and this is an easy task which requires relatively low-level skill. Supervisors will not need the long and extensive training programs that now exist to prepare for such a routine and fairly mundane assignment. As far as rendering a judgment about how adequate a teacher is, all one need do is total up a set of scores and refer to a scoring key to determine whether the teacher being observed "measures up" or not, or should advance on the career ladder or not. These assertions are intended to suggest that the effects of bureaucratic evaluation on supervisory preparation

programs and changing supervisory roles represent still other important areas of research.

Bureaucratic evaluation is based almost exclusively on observing teachers teach. Can observation alone provide the information needed to make meaningful formative and summative evaluations? Are there limits to looking? Stodolsky (1984) challenges the validity of teacher evaluations systems based largely on observation. Her research leads her to conclude that effective teaching is not characterized by one set of behaviors which are presumed to be context free. Instead, teachers teach differently as circumstances change and unless observations sample the range of different situations, one cannot conclude that what is observed is typical of a teacher's general pattern of teaching. Her research is worth extending.

A further issue is, what is not revealed by emphasizing observation of teaching? Can estimates be made about what a teacher really knows, whether a teacher will continuously perform when not observed, and whether that person is committed to continuing professional development by observation alone?

Does "One Best Way" Advance the Science of Supervision?

In recent years the educational community has developed a vernacular sense of what is science and how it works. This sense is quite different from that of the more established sciences. Our "science" is characterized by a false sense of objectivity and

an unequivocal commitment to finding the "one best way" to supervise, teach and evaluate. More advanced scientific fields view objectivity as being related to the unique parameters which define the scientific issues under inquiry. Quantum physics, for example, does not accept the belief that science is objective in an absolute sense and that observers and methods of measurement are neutral. Instead, it is axiomatic that findings are artifacts of their measurements and that realities change as measurements change; that the observer counts and observer decisions and vantage points frequently alter outcomes of research experiments. Science does not reign under the flag of the "one best way", but of "it depends."

There is a parallel here with regard to professional practice. It is a myth that the established professions merely diagnose problems, search from among accepted treatments or solutions to find the one that fits, and then apply that treatment or solution in order to solve this problem. Instead, professionals are more likely to create and fit unique treatments or solutions to the problems that they face. Standard practice treatments are helpful in providing professionals with cognitive maps to facilitate the creation of new treatments. Theory and research is not linearly applied in the professions but is used to inform the professional's intuition as she or he creates practice solutions.

We have available in supervision a large number of "practice solutions" represented by such supervisory models and technologies

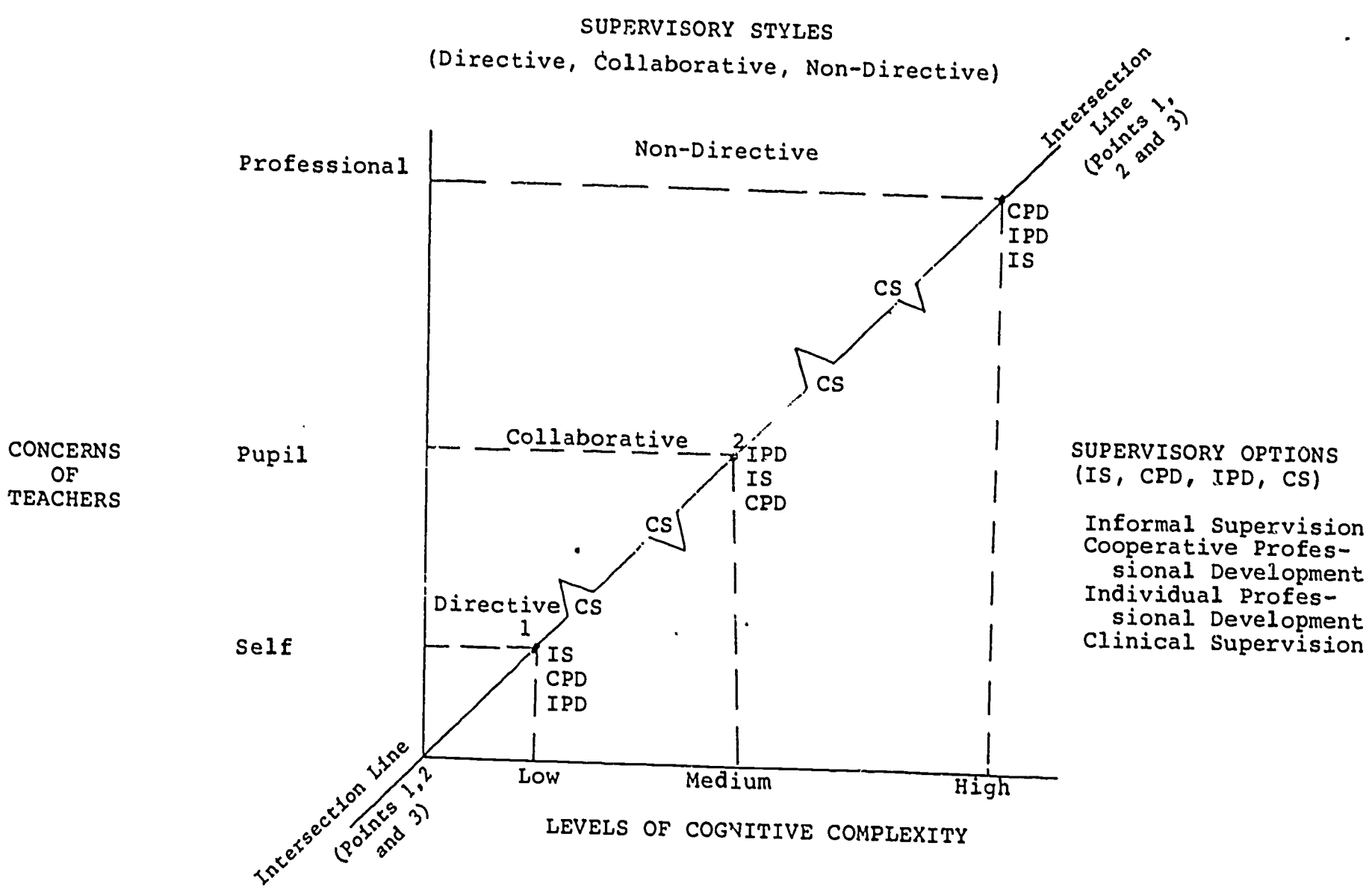
as Hunter's (1984) model of teaching and supervision; clinical supervision strategies (Goldhammer, Anderson, and Krajewski, 1980; Champagne, 1981; and Acheson and Gall, 1980); supervision by objectives (Redfern, 1980); peer supervision (Goldsberry, 1980); hermeneutic supervisory approaches (Garman, 1984,1980; Sergiovanni, 1984b); those which promote critical inquiry (Smyth, 1984; Retallick, 1983); portfolio development (Sergiovanni, 1977); and artistic supervisory strategies (Eisner, 1979). Broad designs for supervision, such as Glatthorn's (1984) differentiated supervision and the supervisory behavior contingency model proposed by Glickman (1981) have been developed. All of these technologies, strategies, and approaches have the potential to enhance teaching and learning. But they can be "mistreatments" as well with negative consequences on teaching and learning.

Advances have been made in identifying the best fit between our supervisory treatments and different educational problems and settings as well as individual teacher differences. Let me provide some examples of promising research efforts and trends which reflect "it depends" thinking and which have the potential for advancing the science and art of supervision and promoting professional practice. Developmental theorists, such as Glickman (1981) and Miller (1981) are working on the problem of matching supervisory behavioral styles with levels of concerns of teachers (Fuller, 1969) and levels of cognitive complexity (for example, Hunt, 1966; Harvey, 1966). I believe they are on the

right track. This effort not only deserves more attention but needs to be expanded to include the matching of appropriate supervisory technologies. Such an effort could provide a rich research base for further development and application into practice of the concept of differentiated supervision (Glatthorn, 1984).

A cognitive map for developing a research agenda within this theme is provided in Figure 1. This map is intended to suggest the relationships which exist between and among teacher levels of concern and levels of cognitive complexity on the one-hand, and most effective supervisory styles and supervisory technologies on the other. The map suggests that low, medium and high cognitive complexity in teachers is related to self, pupil and professional concerns. As teachers rise to higher levels of cognitive complexity with regard to teaching, their concerns shift from self to pupil and finally to professional. As teachers progress through these levels, most effective supervisory styles would change from directive, through collaborative, and finally to non-directive.

Styles and supervisory technologies, of course, are different. A particular technology can be implemented by a supervisor using a number of different styles. But there is a relationship, I assert, between teacher levels of professional concern and levels of cognitive complexity and the most effective supervisory technology. Within Figure 1, supervisory technologies



MATCHING TEACHER CONCERNS, LEVELS OF COMPLEXITY, SUPERVISORY OPTIONS AND SUPERVISORY STYLES

Figure 1

are arrayed along the intersection line with points 1, 2, and 3 being used as specific examples. Point 1 is characterized by teachers who have lower levels of cognitive complexity and correspondingly reflect primarily a concern for self. The directive supervisory style is likely to be most effective in this instance. The most effective supervisory technologies are likely to be informal supervision and to a lesser extent, cooperative professional development.

Informal supervision is characterized by short but frequent visits to the teacher's classroom to monitor and check the teacher at work, to provide specific suggestions, and to otherwise facilitate classroom teaching and learning. Cooperative professional development is characterized by teachers working together on problems of teaching and may take the form of peer supervision, peer clinical supervision, or what have you. Independent professional development is a form of target setting whereby teachers and supervisors enter into a contract which states what will be accomplished, how, and time tables to be followed. At point 2 on the intersection line, we find teachers whose concerns have shifted to the pupils with whom they work and who have correspondingly advanced to medium levels of cognitive complexity. My hunch is that individual professional development will be most effective for these teachers followed by informal supervision and cooperative professional development. Notice that along the intersection line there are peaks and dips. Peaks

represent occasions when teachers might require intense and prolonged help in the classroom with a special problem or a special challenge they may be facing. Dips represent trouble spots as identified by either the supervisor or teacher, or perhaps both. It is on these occasions, I assert, when clinical supervision will be the most effective technology to apply.

The rationale for all of my assertions requires development beyond the scope or the intent of this paper (Sergiovanni, forthcoming). Here, I only wish to point out that we need to expand work in this area to include not only appropriate supervisory styles matched to levels of concerns of teachers and cognitive complexity, but appropriate supervisory technologies as well.

Related items for research within this theme are the effects of increasing cognitive complexity among teachers on teaching and learning and just how complexity is indeed increased. There is evidence which indicates that teachers with higher levels of cognitive complexity provide a greater range of teaching environments to students and that their practice is characterized by a wider variety of teaching strategies and methods (Hunt and Joyce, 1967). Further, students of teachers with higher levels of cognitive complexity tend to achieve more than students of teachers with lower levels (Harvey, 1967). With respect to school principals, Silver (1975) found that cognitive complexity was positively related to complexity of the interpersonal environment

which existed in the school and to the frequency with which principals provided person-oriented leadership behaviors. She concludes "... the more conceptually complex principals had more functions performed in their schools, more professionally oriented faculty members, and more frequent interaction with faculty; they also exhibited greater tolerance of uncertainty and freedom, greater consideration for teachers, and greater predictive accuracy (Silver:1983, 284)."

Learning styles of teachers are other characteristics to be considered as we move away from "one best way" conceptions of supervisory practice to an "it depends" perspective. Teachers are unique in their learning styles and in the ways they solve problems. A reflective supervisory approach would take note of these differences and seek ways to accomodate them in assigning teachers to supervisory options and in providing supervisory styles within options. Kolb, Rubin, and McIntyre (1979) conceive of adult learning and problem solving as a four-stage cycle beginning with concrete experiences, progressing to observation and reflection, to the formulation of concepts and generalizations, and to experimenting with what is learned in a new setting. They identify four different learning modes each corresponding to the stages of the learning cycle: concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE).

There is a certain logic to the progression of cycles which

comprise this learning and problem-solving model. However, few of us are complete learners. Teachers, for example, are more likely to feel comfortable with and to be confident with some of the stages of this cycle than others. Simply put, it is very likely that some teachers will learn best when dealing concretely with something to be learned and will have difficulty responding to abstract approaches to learning. Others are likely to be confused by starting with concrete matters, preferring instead to read about something, to become cognitively oriented to something new before experiencing it first-hand. Still others prefer to observe new learning possibilities and actions first, then to reflect on what is to be observed before developing a conceptual map or having a guided concrete experience. And among teachers there is still another group who might be characterized as "tinkerers," quick to jump in and experiment with new ideas and practices by using a process of muddling through. They then move to more reflective, abstract or concrete understandings. The point of all this is that adults, like children, differ in the ways in which they learn and solve problems, and supervisory strategies should reflect these differences.

Based on my own interpretation of the learning and problem-solving research, I make the following assertions regarding matching of learning styles to supervisory technologies: teachers oriented toward concrete experience will respond well towards cooperative professional development for it provides them

with opportunities to interact with other teachers about their work. They would be less interested in bookish interpretations of practice and would be more interested in knowing and experiencing what works in the classroom next door. Further, CE teachers would prefer guided concrete experiences whereby they have an opportunity to try out a new idea much as does an apprentice working side by side with a master. They are likely to be situation-oriented and would want to focus on real problems and actual issues of teaching and learning. Sometimes their concern for what is immediate prevents them from "seeing the forest because of the trees." Often they adopt practices by mimicking them and thus not understanding them fully. As a result they often have difficulty in extending their practice, in applying learned practices to new situations or in modifying these practices as situations change. Concrete experience teachers are likely to interact with others and would not prefer supervisory settings which require them to work alone. Thus, they are not likely to view individually oriented professional development strategies as being very helpful. Different patterns of learning and different patterns of response to supervisory technologies can be expected from teachers who could be characterized as reflective observation oriented, abstract conceptualization oriented, or active experimentors. There already exists a number of ways in which learning styles of teachers might be assessed (Kolb, Rubin and McIntyre, 1979). Work needs to be done to understand how

supervisors might develop and modify available supervisory technologies in the ways which better reflect these differences in learning styles.

Social motives theory (McClelland, 1961) represents still another avenue of inquiry which should be accounted for as supervisory strategies are planned. According to social motives theory, teachers bring to their jobs different levels of the needs for achievement, power and affiliation. When they are able to express their needs at work, they respond with increased motivation to work and with job satisfaction. Different need combinations in teachers are likely to produce predictable responses to various supervisory approaches and strategies. Will high need for achievement teachers, for example, be more motivated to work when supervised through individually oriented techniques (target setting, performance contracts) than cooperative (peer supervision, professional development teams)? What strategies make most sense for high affliation oriented teachers?

Creating Professional Knowledge

Imagine an architect's book of house plans with each plan linked to certain aesthetic and practical requirements of "ideal" clients. Few of the plans, however, are likely to meet the specific needs of actual clients since their requirements are unique. This book of plans serves as a cognitive map from which both architect and client are able to assess and categorize their

requirements and thus come up with a suitable house plan. If a particular house plan fits exactly, it is used. More often than not, however, existing plans are modified here and there, and a customized plan is developed. The point of all this is to suggest that supervisory practice will not advance professionally if conceived as the simple and routine application of canned treatments and if teachers are viewed uniformly. Teachers differ and practice situations differ. Professional practice is particularistic and treatments are tailored accordingly as professionals create knowledge in use (Sergiovanni, forthcoming). Research in supervision can help advance professional practice by providing a body of rich and varied theory and research which helps to inform the intuitions of professionals at work. Our task as researchers, and our research agenda for the future, is to build a practice map book for supervision filled with an array of techniques, technologies and models each linked to specific, albeit ideal, requirements of practice. If a supervisor is lucky enough to find an existing "treatment" in the book which exactly fits her or his problem, it is used as prescribed. But the book must be rich enough and extensive enough to provide the cognitive maps which help supervisors develop unique treatments they may require.

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