

## **The Teacher Technician: Causes and Consequences**

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The fundamental issues that help shape the criticism of technocratic narrowness among teaching professionals are examined in this paper. My major aim is to offer some observations about the root causes and wider educational consequences of this alleged narrowness in teacher thinking and behavior. My argument in the paper is based on the view that sociopolitical forces external to the school tend to constrict the pedagogical conduct of teachers.

On déplore de plus en plus et à bon droit, chez les professionnels de l'enseignement, l'étroitesse technocratique. Cet article a pour objet de mettre au jour les sources et les conséquences de ce phénomène. Mon propos est de démontrer que des facteurs exogènes à l'école restreignent le champ où devrait s'exercer le jugement pédagogique des enseignants.

Over the years, efficiency driven reforms have helped to sanction reductionist models of instruction in the schools, including innovations like competency-based instruction, mastery learning systems, teacher proof materials, performance contracting, accountability testing, and programmed instruction. These attempts to apply formulaic approaches to teaching have contradicted the complex nature of classroom teaching by reducing the teacher's role in the curriculum to its most rudimentary and routine elements. The emergent quality of the teaching situation makes it clear that segmental approaches to teaching, like those mentioned above, have only limited applications in the curriculum. It takes creativity and intelligence to plan and implement educative engagements in the classroom. Such engagements are not likely unless educators abide by a professional vision that conceptualizes the curriculum in terms that are responsive to the learner, to the values and aims of the society, and to the wider edifices of knowledge (as represented in the curriculum's subject matter).

Given the complexity of teaching, it is indeed troubling to note that teachers (and those who influence them) have quite often responded simplistically to their situations. Goodlad (1984) found that, in many subject areas, the most simple-minded teaching techniques still dominate the classroom. In the teaching of social studies, for instance, most classroom activity involved rote and recitation approaches to memorizing facts; in language arts the focus was fixed on the

mechanics of word recognition, phonics, vocabulary development, and the basics of grammar (pp. 209-211). Across all subject areas, Goodlad found that a rather traditional teacher lecture format, pitched to a low level of intellectual challenge, was standard operating procedure in the classroom. And when the teacher was not lecturing, Goodlad found that students busied themselves with relatively narrow and unsophisticated levels of individual seatwork.

Despite the recent energy devoted to the issue of teacher empowerment, the teaching ranks continue to be described as suffering from a narrow technician mentality. According to Giroux (1988), the problem is systemic to schools, where a traditional pedagogy of narrow standardization aims only to transmit knowledge uncritically to students, thereby placing the teacher in the rather unimaginative position of imparting information and skills identified preliminarily as most worthwhile. As McNeil (1988) indicated, there are school districts today that seek to take both the choice of curriculum building and the means of testing students away from teachers and place it in the hands of external agents looking to redesign the curriculum for the purpose of bringing it into alignment with the material used on standardized examinations (p. 478). This results in what McNeil called an *engineering approach* to teaching and learning in which the teacher's decision making influence in essential areas of pedagogy and curriculum development is weakened, if not entirely usurped. Rather than taking an aggregated approach to teaching that searches for improvements to established practices, the teacher is told to focus specifically on the mechanics of the instruction. The whys and wherefores of teaching are ignored.

The Tanners (1987) characterized the work of the teacher technician as being based on an *imitative-maintenance* level of teacher knowledgeability. Here, the teacher's thinking and action are circumscribed by an uncritical adoptive mentality that makes a virtue of obediently yielding to external prescriptions like those offered in teachers' guides (and other prepackaged curriculum materials) and in the "top down" urgings of the school administration. Educators at this low level of development are likely to ride every school tide that comes their way. They are also likely to view teaching in microcurricular terms by valuing only the instructional side of the teaching act and by rating student achievement through standardized examination measures. Since educators are, in the final analysis, the main determinants of the curriculum, the preponderance of educators at the imitative-maintenance level sets the conditions for reactionary school change and supports further the reductionist role for the educator (Tanner & Tanner, 1987, pp. 329-335).

The history of curriculum reform is rife with examples of imitative-maintenance behaviors among teachers. During the back-to-basics movement of the mid-1970s, for instance, emphasis was placed on the isolated development of narrow basic skills. Within their classroom roles, teachers responded in kind by identifying with low level teaching approaches like prepackaged mastery learning systems and behavioristic programmed learning systems. It was also during this time that

"teacher-proof" materials came into favor. These materials consisted of programmed learning workbooks, some varieties of computer-assisted instruction, and highly prescriptive learning packages that scripted what the teacher should say and do, with the effect of reducing teaching to the task of engaging students in prescriptive seatwork. Giroux described the underlying rationale for teacher proof materials to be geared to a pedagogy of simple management and efficiency (1988, p. 124). Obviously, teacher professionalism also suffered from these initiatives because the school practitioner was not conceptualized as an independent thinker whose job was to make critical judgments in the classroom. Instead, the teacher was conceptualized as an element that the school program needed to protect itself against.

It is disturbing to note that, increasingly, teachers seem to be giving up their professional power to teach as they choose. This obviously cuts away at the very core of the professional prerogative, for as Dewey (1904) stated, teachers:

should be given to understand that they not only are permitted to act on their own initiative, but that they are expected to do so, and that their ability to take on a situation for themselves would be more important in judging them than their following any particular set method or scheme. (pp. 27-28)

Teachers have not yet totally relinquished their autonomy, but they are increasingly defaulting on it. The freedom to think according to a professional method does not occur spontaneously, but is carefully developed through a commitment to knowledge derived from the professional literature. Unfortunately, teachers are being affected by outside mandates that cut against the professional grain. My purpose in this paper is to describe the underlying causes and consequences of this counter-professional movement.

### *Causes and Consequences*

In order to truly affect curriculum reform, emerging change agents must influence the nature of the central building blocks of curriculum development, including variables like classroom materials, teaching methods, organization of the subject matter, and amount of time allotted to certain curricular areas. The most direct way to exercise these kinds of changes is through the foremost determiner of the curriculum: the classroom teacher. Not surprisingly, then, vying participants staked in the process of seeking improvements in education fix their sights on the question of how to bring teachers into line with their own priorities and objectives. Principals, supervisors, superintendents, boards of education, concerned citizens, legislatures, departments of education, court systems, political leaders, academicians, business and industry, foundations, and national governments each carry agendas for educators. Some of these participants have relatively direct access to the teacher and can exert their influence through recognized and identified channels. Others have no such recognized paths and are forced to seek control and influence over those agents that hold closer associations with teachers (Mackenzie, 1964). Business and industry, for instance,

might seek to alter curriculum practice by shaping public opinion through media sources. This might subsequently affect the way, say, legislatures and department of education officials conduct education policy, which, in turn, might precipitate changes in the ways teachers think and behave.

At the center of all these competing interests is the educational or administrative school leadership, which formulates points of emphasis in the curriculum of a school district by shaping the natures of inservice programs, supervisory procedures, curriculum materials, school schedules, and overall public relations strategies. As the leading spokespersons for schools, these administrators are closely tied to the constituency of the school community and are thus likely to favor changes that are publicly visible and promotionally attractive. If an idea like, say, computer instruction is solidly ingrained in the public consciousness as beneficial to the education of the local children, school administrators will have difficulty resisting this force, even in the absence of research data pointing to the "strengths" of using computers in school. If the neighboring district shows a commitment to computer instruction, the political screw turns even tighter on the administrators.

Today, teacher intelligence is being quashed by various instructional mandates that have the effect of narrowing the curriculum in the classroom. Many of these mandates are sanctioned by the educational leadership as proper and acceptable professional conduct. They arrive at the schoolhouse door through the exercise of special interest pressures by various agents, including the political leadership, the textbook publishing industry, the media, and the testing industry.

### *The Sociopolitical Context*

An ingredient essential to this process of change is the sociopolitical context. In all areas of school reform and change, social and political processes are at work, sorting and sifting differing views of what is desirable and what will ultimately prevail as a priority or emphasis. It is commonplace for national goals and agendas emerging out of the perceived problems of the day to quickly become educational problems. Such problems can be nationalistic in orientation (like those witnessed during the post-Sputnik period, when American schools were charged with the responsibility of trying to beat the Soviets in the global race for military domination and supremacy in space), or responsive to a pervasive ill of the society (like the recent effort to bring AIDS and drug education to all youth of the society). Clearly, schools need to be attuned to the dynamics of the sociopolitical climate, but they must not be dominated by them.

Historically, teachers have demonstrated the unusual behavior of readily yielding to the ferocious whims and fancies of sociopolitically-driven reform efforts. During the Cold War period, teachers were compelled to embrace National Science Foundation sponsored curriculum projects, only to flip-flop during the mid-1960s, when the humanizing reforms of the open education movement came into favor. During the mid-1970s, teachers again shifted focus by uncritically embracing the

back-to-basics movement. Today, in reaction against the bankrupt back-to-basics initiatives, teachers are increasingly recognizing the need to teach broad problem solving and communication skills.

Paradoxically, this seesaw battle over curriculum emphasis has not swayed the teaching profession from loosening its vice grip attachment to a rather simple and all-encompassing recitation-seatwork style of teaching (Goodlad, 1984; Cuban, 1984). This seemingly contradictory criticism of educators places teachers in the untenable position of simultaneously embracing a rigid methodological structure and a shifting curriculum policy perspective. However, Sarason (1983, p. 19) has argued that there is little contradiction in this position. In his view, the responsiveness of school personnel to educational fads and fashions has been more perception than reality, more rhetoric than operation. But the reactionary nature of curriculum change in American schools has been well documented, and in reality it might be more accurate to describe the relationship between the intractable and the capricious ways of educators as symbiotic. Since schools are susceptible to external influences (especially those based in the sociopolitical temperament of the times), they tend to misfire wildly with one or another kind of sociopolitically-driven reform. But the peripatetic nature of these changes also forces the teachers to hold onto a methodological approach that can absorb almost any curriculum priority. For teachers this amounts to a sort of instructional coping device. Hence, as the Tanners (1980) showed, even during the open education movement of the late 1960s (when schools were looking toward more integrative curriculum schemes), it was not unusual to witness the adoption of the open education concept as an "administrative rearrangement for teaching the fundamental skills under the theme of 'individualized' instruction" (p. 119). The notion of open education was reactionary but the methodology used to operationalize the idea was largely traditional. This unusual mixture of behaviors reinforces the image of a profession out of touch with its own history and its own body of research insights. It also reinforces the image of a profession in a state of inertia, teetering and tottering in one direction or another, and ultimately failing to commit itself to any direction at all.

### *Testing*

Since the early parts of the 1980s, standardized testing in public education has gained undiminished popularity and authority. In fact, the penchant for measurement has affected virtually all facets of the school and has been increasingly tied into a host of policy issues pertaining to school equity, school effectiveness, teacher evaluation, school accreditation, and student assessment (Ariasain and Madaus, 1983). More specifically, in many schools, tests have served as the primary criterion for school decisions relating to grade promotions, admission to gifted and talented programs, assignment to special education programs, teacher certification, and high school graduation. This has given standardized testing a "high stakes" status in the curriculum (Madaus, 1988). As a result, educators no

longer see testing as an imperfect mechanism that tries to assess student achievement and diagnose variable curriculum strengths and weaknesses. Instead, they have been persuaded into seeing it as the final ground for the adjudication of how the curriculum will be organized and executed, and what will ultimately be included. Since much of the test data amassed over the years through standardized tests have been used to manufacture recklessly negative arguments against the public schools, the implication, time and time again, is that test score data are infallible and that the best way to improve education (or at least to demonstrate improvement) is to raise standardized scores. This tightening of the linkage between testing outcomes and school policy has caused many educators to teach directly to the examination, thereby perverting the curriculum of the classroom by reducing it to trainable items on a test.

Throughout the 1980s, standardized test measures have been used to berate school achievement in varied areas of educational concern. For example, at the broadest institutional level, data taken from International Education Achievement (IEA) sources have been used to portray American schools to be vastly and perilously deficient. This is both sad and distressing because IEA data were never meant to be used as a contest among nations. There are just too many societal factors that thwart the validity of such cross-national comparisons (Hlebowitsh, 1989). The inclination to measure the health of schools according to standardized test criteria has also existed at national, state, and local levels. Recently, the Department of Education in the United States has made a practice of issuing a "wall chart" displaying a state-by-state profile of student achievement throughout the country and ranking the states in order of accomplishment. Proponents in the Department of Education claim that the wall chart outlines reliable measures of student performance across state boundaries. Each year, for six years running, it has been used to make public declarations about the condition of American education. Members of the news media, who are themselves rarely sympathetic toward public schools, have typically given the wall chart headline news status. Predictably, school officials and politicians have shown little hesitancy in using these data to claim success where the scores have been favorable. Unfortunately, this has given further credence to the misguided notion that overall school achievement can be narrowly demonstrated.

Even more outrageous than the use of the wall chart is the employment of SAT outcomes as evidence to judge the general soundness of schools. This has been an especially favorite tactic among lay critics and political officials. In the early 1970s, when a decline in SAT score averages was first noted, public concern developed quickly. The reason for the decline turned toward the education institution itself: poor teachers, incompetent administrators, inadequate resources. Each of these criticisms reinforced the impression that SAT achievement was an index of the quality of schooling. But even by the admission of Educational Testing Service (the developer of the examination), the SAT was never meant to act as the report card for a nation's schools. It was not designed as an instrument that

tests all representative areas of knowledge, skill, understanding, and affect; it was not even intended to be disseminated to a representative sample of the student population (Turnbull, 1985). Despite these admonishments, local districts continue to declare publicly their own competency by pointing to specific scores of standardized achievement, including the SAT. Real estate agencies have responded in kind by using the mean SAT achievement scores of various school districts to help identify residential localities with "good" schools. All of this attention and pressure on testing has led directly to the continued advocacy of measurement-driven instruction (that is, teaching for the test). This, in turn, has led to the accompanying constriction of the curriculum and the subordination of the teacher's professional judgment.

The mandate to teach for the test sometimes emerges from the principal's or superintendent's office. As mentioned, school administrators are quite keen on showing visible signs of aptitude in their schools and nothing meets this need better than favorable school-wide results on norm-referenced standardized examinations. With the public image of the school at stake, administrators might exercise subtle (or not so subtle) pressures to ensure meritorious examination outcomes. Teachers might then yield to their superordinates and rationalize their role in the measurement-driven curriculum by emphasizing the notion that student destinies are dictated by examination results and that educators must do their utmost to boost these all-important scores. Researchers like Popham (1981) believe that teachers are justified in teaching for the test because of the marked improvements that such a methodology generates in the basic skills competencies of the students. Popham, however, ignores the fact that testing has contributed to a raft of pedagogical problems including, but not limited to, the narrowing of the concept of curriculum to that of an instructional system which concentrates mostly on the development of low level skills most amenable to quantification.

### *The Curriculum/Instruction Divide*

Many of the problems that serve to delimit the role of the teacher in the classroom can be attributed to the way that school professionals treat curriculum knowledge apart from instructional knowledge. According to Cady (1988), a historical accounting of the professional literature shows that instructional concerns which directly influence such essential matters as supervisory practices and teaching methodologies have typically been treated without much consideration of the subject matter and of central macro-curricular principles.

When the domains of curriculum and instruction are treated dualistically, the organic character of the educational situation is undermined and the teacher is left with a stilted knowledge framework with which to make pedagogical judgments. Such a division has the effect of focusing the priorities of the classroom upon solely instructional manipulations. More often than not, this translates into the development of highly structured lesson plans that articulate the management actions of the lesson. These actions include events dedicated to, say, gaining the

class's attention, or informing the class of the lesson's objective, or eliciting the so called "desired behavior" of the lesson. Preliminary questions pertaining to the appropriateness of the objective and the appropriateness of the subject matter (and the way it is organized) are thought to be preexisting in the textbooks and curriculum materials of the classroom and are skirted. The teacher becomes the means by which to deliver fixed objectives, ready-made rules, and prescribed subject matter.

The division of curriculum from instruction has also helped to nurture the current instructional preoccupation with lower intellectual processes and the accompanying disproportionate regard for the isolated development of basic facts and skills (Tanner and Tanner, 1980, p.30). To view the curriculum as a separate entity is to fail to view the subject matter as a context on which to experience knowledge and skill applications. Such a failure ignores the connection between the subject matter and relevant personal and social concerns. Instead, what often occurs in the classroom is a highly discipline-centered treatment of the subject matter, where the teacher stakes the objectives of the lesson to the goal of simple fact accumulation and subject mastery. The subject matter itself, organized often in the most abstract and puristic terms, becomes the curriculum; maneuvering through it with effective instructional procedures becomes the teacher's main concern. Fortunately, there is growing recognition among educational thinkers that content or subject matter choices are vital determinants in the effectiveness of classrooms and schools (Schulman, 1987; Stodolsky, 1988), but such insights are not likely to have much of an effect on teacher behavior and thinking until the literature in curriculum and instruction is more unified in framing the act of teaching to the profession.

For years, insights provided by the division between curriculum and instruction in the research literature have kept teachers from exercising a more expansive curriculum vision and intelligence. One of the more recent major insights emerging from this literature, for instance, is the principle of *time on task* (an idea that espoused the need for teachers to keep learners engaged in classroom activities). It is obvious that engagement is a prerequisite for learning, but all forms of engagement are not educative. Since the time on task dictum does nothing to highlight or underscore the qualitative character of the task, it is a spurious insight. Among school professionals, especially teacher supervisors, time on task has been interpreted to mean that good teaching is marked by high levels of engagement, irrespective of the nature of the learning engagement. To accomplish this, teachers might resort to external inducements (and other devices of management) to generate motivation, or they might offer lively child-centered activities that are motivating but non-educative. From an instructional view of time on task they might be justified, but from an organic view of the curriculum they are misguided. The notion of time on task has little worth unless an effort is made to evaluate systematically the relative quality of classroom tasks. Without the insight of curriculum knowledge, such judgments are impossible to make.

Erickson (1986) described the problem thoughtfully. "If the fundamental [teaching] problem is reduced to keeping people spending time on task," he observed, "then the teacher will learn less and less about how to understand people, activities and tasks" (p.140). Such a development is, of course, odious to the conception of a professional.

The literature on effective teaching provides another example of the shortsightedness of purely instructional knowledge. Schulman has argued that the empirical research on effective teaching has overly simplified the teaching situation by dwelling on managerial forms of instruction. According to Schulman (1987):

Critical features of teaching, such as the subject matter being taught, the classroom context, the physical and psychological characteristics of students, or the accomplishment of purpose not readily assessed on standardized tests, are typically ignored in the quest for general principles of effective teaching. (p. 6)

A recent review of the effective teaching literature by O'Neill (1988) substantiates Schulman's point. Of the twenty generalizations that O'Neill derived from the effective teaching literature, there is no substantive mention of the potencies of curriculum knowledge. Indeed, the assumption is that effective teaching is removed from such considerations. Despite what is reported in the literature on effective teaching, it is indeed possible for an educator to abide by effective teaching generalizations (that is, to have high expectations for all learners; to be enthusiastic, clear, vigilant, and fair to all students; and to receive similarly high grades on all of the other effective teaching generalizations and still not offer very effective learning experiences in the classroom. The missing knowledge link in this case centers around such curriculum issues as (a) the justification of educational aims; (b) the development of learning strategies and content choices that are attuned to the learner, the subject matter, and the values and aims of society; and (c) the reflective consideration of the moral and pedagogical implications of teaching. As long as educational researchers study instruction apart from whatever it is that is being taught and policymakers accept the findings as research-sanctioned approaches to good teaching, we can expect a continued skewing of teacher knowledge.

Not surprisingly, the findings reported in the educational literature have also been overridden by the popularity of strictly instructional models for school and staff development. The popular Hunter (1980) approach is perhaps best known. The Hunter approach lists various structural elements of a lesson (anticipatory set, statement of objectives, careful monitoring for understanding, guided and independent practice, and a sense of closure) as the foundation for effective pedagogy. Since the early 1980s, it has dominated teacher inservice programs throughout American schools, affecting the thinking and behavior of thousands of teachers. Some school districts have even used the Hunter approach as the main criterion by which to judge teacher aptitude and have staked the model into promotion and salary decisions. Slavin (1987) has maintained that the Hunter

model has taken on a panacean quality which has left school administrators thinking that they cannot do without it. As a purely instructional model, however, the Hunter model is far from holding the key to effective teaching. In Anderson's words (1988), the Hunter model may well be usefully applied to the advantage of some learners in some situations, but overall "it suffers from a highly directive orientation in which there is only one definition of 'good' teaching" (p. 77). Teachers may successfully execute the model, but the question of how they should proceed from the standpoint of instruction is without merit unless it is concurrently framed with the question of what is being taught, why it is being taught, and how it can better be taught in subsequent interactions. To embrace a single model as a closed and complete instructional system is to generate an educational myopia that does little to advance the teacher's professional role. In fact, it comes dangerously close to constricting the act of teaching to formulaic and routine patterns. As Dewey (1916) stated, "nothing has brought pedagogical theory into greater disrepute than the belief that it is identified with the handing out of teachers' recipes and models to be followed in teaching" (p. 199).

So-called instructional specialists have not acted alone in separating the realms of curriculum and instruction. Some curriculum specialists have also gotten into the act of separating the two domains by developing segmental management systems, like curriculum mapping and curriculum alignment, which tend to devote disproportionate energy to the inculcation of discrete skills (Glatthorn, 1987). The central motivation behind such systems approaches to curriculum is to identify and align specific mastery objectives. Since the rhetoric of curriculum alignment describes curriculum development as a process requiring a carefully tailored coordination effort between objectives, learning experiences, and testing procedures, there is a cosmetic appeal to it. Inevitably, however, curriculum alignment turns out to be little more than a rationalization for teaching to the test because it tends to bring everything into alignment with the all-encompassing priority to raise test scores. In this way it brings the act of teaching down to its least common denominator.

### *Curriculum Materials*

Teachers have often been accused of being held captive by the classroom materials that are brought to bear in the act of teaching. From textbooks to workbooks and worksheets, to teachers' guides, and to various learning packages, the kinds of materials that teachers employ and the ways in which they employ them are crucial to the educative development of students.

The textbook is among the most potent and durable resources used by teachers in determining the content and the teaching procedures in classroom learning activities. The nature of conventional classrooms continues to be dominated by learnings that are based on or directed by the textbook, although workbooks and worksheets have also emerged as popular resources (Goodlad, 1984). Historically, the teaching of textbook content has been a central responsibility for the teacher.

Given the transmissive function of the traditional school curriculum, "teaching the textbook" has often been equated with transmitting what is worth knowing in a particular discipline or area of inquiry. In such a situation, the overarching purpose of the textbook is not to expose learners to ideas and unsettling issues but to represent disciplinary knowledge in a linear and puristic format. For all intents and purposes, the textbook becomes the curriculum and the pedagogically crucial process of curriculum development becomes little more than a matter of textbook adoption. Effective teaching is achieved by closely and uncritically tracking the lesson to the text.

Just how do teachers use their texts in classrooms? The question is unfortunately understudied, but emerging work is providing some important answers. The findings of studies conducted by Stodolsky (1989) suggest that teachers are not slavishly committed to teaching by the book, though the degree and the kind of adherence varies across the subject matter of the curriculum. Part of this might be explained by the fact that Stodolsky only examined highly experienced teachers who might have already established confidence in using the text in resourceful and creative ways. Part of it might also be explained by the nature of the texts utilized. By their very nature, some texts reject a closely tracked treatment by raising controversial ideas, problems, and issues, while those texts that are mainly concerned with transmitting knowledge in the form of facts and skills might close off significant areas of inquiry and force a "by-the-book" treatment. This issue has yet to be explored substantively. The use of the case study method has also limited the generalizability of Stodolsky's work; thus, there continues to be a need to detail fully what teachers do when they stray from their textbooks.

Textbooks and workbooks have recently been criticized for, among other things, the inordinate concern of their authors for piling on facts and terms, and for stilted and formula-driven writing which often precludes the treatment of ideas and issues in the narrative of the text (Elliott and Woodward, 1990, p. 223). The body of this criticism shows that teachers may need to work against their own materials in order to bring idea and concept development to the classroom. This is not a trivial problem. Tanner (1988) recently documented the "dumbing down" effect on American schoolbooks and attributed it to a prevailing atmosphere of curricular reductionism and censorship compliance (like the publishing industry's capitulation to censorship pressures exerted on science texts by Creationist religious groups). This dumbed down treatment of the text has affected all youth, but increasingly there has been a tendency to justify this treatment for the education of disadvantaged youth. As Oakes (1985) has shown, students in lower track settings (who are disproportionately represented by minority and low income students) receive a reduced version of learning that is devoid of ideas and focused unjustly on mechanical exercises (e.g., skill-drill; workbooks; low-level exercises). Such students are also victimized by low teacher expectation, poor classroom climate, poor student-teacher interactions, and an uneven and inequitable distribution of knowledge (Anyon, 1981).

The textbook is often delivered to the teacher with a series of learning materials that make up what publishers and some school leaders see as a total teaching package for the classroom. When schools were subject to increasing demands for minimal-competency testing during the 1970s and 1980s, teachers naturally focused their teaching on facts and skills, resorting to a teaching-to-the-test format that made workbook exercises much more popular. In most cases, the workbook is structured for the purpose of low-level skill development or low-level fact accumulation. The extent to which educators resort or even depend on these materials is an indication of the extent to which the "teacher technician" mentality prevails. The reliance on the rudimentary and routine tasks that comprise workbook activities mitigates against the development of a professional construct that accounts for the mission of the school in the society and the place of the learner in the teaching-learning process. It scrubs idea-orientation away and replaces it with an unhealthy teacher dependency on teaching minimal competencies through a skill-based curriculum.

The prevalence of the computer in the classroom has also contributed to the low levels of knowledgeability among educators. Among the most popular applications of computers in the classroom during the 1980s were programmed learning and teaching through skill and drill (Center for Social Organization of Schools, 1983). This unfortunate turn of events was foreseeable given the history of educational technology initiatives in American schools and given the fact that computerized learning is extremely well-suited for an operant conditioning model of learning. Sadly, the schools proceeded in a frenzy of computer purchases before understanding how the computer might interface with the curriculum. During the early 1980s, when this buying spree took place, there was a thin research mandate for computer use in schools. As a result, schools turned to the very same instructional exercises that had characterized the teaching machine and programmed learning of the 1960s and 1970s. Of course, the difference was that, with advances in graphics and programming design, the computer was capable of offering a more colorful and energetic presentation to the student. In most cases, however, all this meant was that the computer added a cosmetic measure of glamor to the primitive rituals of skill-drill and stimulus-response learning. As Roblyer (1982) observed, the buying propensity of the schools brought in a new number of technology products with flashy screens and clever selling gimmicks, products designed typically with little attention to important instructional concerns.

Again, we return to the question of teacher knowledgeability. The visual appeal of the computer may well have an effect on learner interest level, but to the informed educator the computer's atavistic nature is not easily disguised. While the computer may yet prove to be an extremely helpful resource to teachers, it seems clear that progress in this area will not occur until the computer is extricated from the operant conditioning model of learning to which it is so well-suited and is reexamined with the purpose of enhancing and supporting idea-orientation in the curriculum.

## Conclusions

Narrowness in the thinking and behavior of today's educators is associated with numerous factors. The exigencies of elevating standardized test scores, the proliferation of "plug in" instructional models for teachers, the formulation of reductionist materials for teachers (e.g., prescriptive teacher guides, teacher-proof learning materials, and even some forms of computer-assisted instruction), and the exercise of influences working outside of the interests of schools, all help to hinder the teacher's ability to utilize or implement a more orchestral perspective on teaching and learning.

Teachers ought to be taught and encouraged to analyze critically and to reflect on the full dynamics of the educational situation. They should be prepared to make practical decisions on the selection and organization of the subject matter, the promotion of clear-cut learning patterns, and the identification and use of sensitive and responsive assessment mechanisms. They should also be prepared to give critical thought to the educational, social, and moral implications of their pedagogical efforts. In the final analysis, it is the teacher's own skill and insight that act as the final arbiter of what is taught and how it is taught. But the advancement toward a more critically-minded teaching profession will be thwarted until teachers are liberated from the bonds of the technician mentality.

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