DIRECT INSTRUCTION: AN EDUCATORS' GUIDE AND A PLEA FOR ACTION

THOMAS KIM AND SAUL AXELROD

TEMPLE UNIVERSITY

The achievement gap between minority youth and the majority population in the United States is well documented (Johnston & Viadero, 2000). In order to reduce this gap and avail children of poverty of the most effective educational techniques, Project Follow Through was conducted in the 1960's. The research that compared a variety of educational approaches found Direct Instruction techniques to be the most effective along all measures. Since that time there have been numerous studies that have demonstrated the great benefit of Direct Instruction procedures for the education of minority youth. Yet, few school systems use the procedures. The article discusses arguments for and against the adoption of Direct Instruction techniques and makes a plea for minority educators to lead a movement that will lead to widespread espousal of the procedures.

Key words: direct instruction, academic achievement, dissemination, inner - city students.

THE SCOPE OF THE PROBLEM

Since the 1970's the National Assessment of Educational Progress (NAEP)—also popularly known as the Nation's Report Card—has been assessing K-12 students throughout the U.S. in their skills across common academic disciplines. These scores are then differentiated by subgroups such as age, ethnicity, socioeconomic status, and gender to show comparative trends in academic performance. From the time these and other similar assessments have been enacted, a significant disparity has been apparent between the academic achievement of White students and students in minority groups—Black, Latino, and Native American, specifically. This "achievement gap" has been well-documented and tracked carefully over the years; the 1970's and 80's showed marked progress in narrowing the gap in several important subject areas, but this relative progress has since stalled (Johnston & Viadero, 2000; National Center for Education Statistics, NCES, 2001).

Kober's (2001) analysis of the achievement gap points out that the 1999 NAEP statistics in both trend assessments and main assessments reveal a persistent disparity between the academic achievement of White majority students and Black, Latino, and Native American minority students. At every age and subject level, Black and Latino students trailed White students—sometimes by several equivalent academic years or grade levels. In the 1998 NAEP main writing assessment, 8% of Black 4th graders and 10% of Latino 4th graders scored at a Proficient level, compared to the 27% of White 4th graders. Similarly, the NCES reported in 2001 that Black students overall had lower math and reading scores than White students at every grade level. Even within integrated, middle-class suburbs the Black-White achievement gap has been documented to persist (Johnston & Viadero, 2000).

At the same time, Black and Latino students are making up a larger and larger percentage of the school-age population. According to the U.S. Bureau of the Census, Black and Latino children will make up 34% of the school-age population in 2010. In many urban school districts, these groups already comprise more than 80% of the student population (Kober, 2001). Furthermore, elementary and high school academic achievement scores have been shown to correlate strongly with high school completion, college enrollment, and labor market outcomes (Jencks & Phillips, 1998; Johnston & Viadero, 2000; NCES, 2001). Recent studies have found that the academic achievement gap between Blacks and Whites could statistically account for most of the eventual wage differential between the two groups (NCES, 2001). Johnston & Viadero cite data compiled by the RAND Corp. that found Latino children will be 2.6 times more likely to grow up in poverty than White children in the year 2015, a ratio that has steadily increased over the past decade. These repercussions are compounded by the changing marketplace, which demands more educated workers for a society revolutionized by technological changes and worldwide globalization. When America's shifting demographic is considered, along with the implications of early academic achievement, the achievement gap phenomenon has consequences beyond the disenfranchisement of a few minority groups to the fate of a national economy.

In their overview of the possible explanations for the achievement gap, Jencks and Phillips (1998) posit that no single factor fully accounts for the phenomenon, although aspects of family and cultural background do play

important roles, particularly when interacting with institutions like schools. Indeed, several researchers have argued that the very existence of the achievement gap confirms a systemic racism in the American educational system where Blacks and other minority groups are at a consistent institutional disadvantage in the quality of their education (Johnston & Viadero, 2000; Skrla, Scheurich, Johnson, & Koschoreck, 2001). Ferguson (1998), in his survey of initiatives addressing the achievement gap, found that schools themselves can help reduce the achievement gap by enacting research-proven strategies to raise academic performance.

WHAT WORKS WITH CHILDREN OF POVERTY?

In 1967 a national study to find such strategies was helmed by the Lyndon B. Johnson administration as part of its War on Poverty. Sponsored by the Department of Education and conducted by the Stanford Research Institute, Project Follow Through has been cited as the largest controlled comparative study of teaching methods ever, involving about 700,000 students in 170 communities across the United States (Bock, Stebbins & Proper, 1977; Nadler, 1998; Parsons & Polson, 2000; Schuman, 2002; Watkins, 1997). It used a planned variation experimental design; parents in selected communities reviewed the proposals of over 22 educational models and requested one to be implemented in an area school. Each school with an experimental implementation was matched with a "control" school within the same community that would not receive any such implementation (Schuman, 2002). The study was, therefore, a general comparison of composite educational models to identify "best practices" for school reform (Parsons & Polson, 2000).

Ultimately, 12 models of instruction were compared, including 4 major representatives of child-centered pedagogy: Constructivism or Discovery Learning, Whole Language, Developmentally Appropriate Practices, and the Open Education Model (Bock, et al., 1977; Watkins, 1997). The most requested model in the study, however, was Direct Instruction, a teacher-centered approach for training academic skills (Schuman, 2002); it was implemented in 18 school districts for Project Follow Through (Nadler, 1998).

A 1977 evaluation of the Project Follow Through results revealed that scores on the Metropolitan Achievement Test, Coopersmith Self-Esteem Inventory, and Intellectual Achievement Responsibility Scale overwhelmingly favored Direct Instruction in superior student achievement over other models and control schools in nearly every comparative category: basic reading and math skills, higher order skills in cognitive and conceptual thinking—even self-esteem (Adams & Engelmann, 1996; AFT, 2002; Becker & Carnine, 1981; Coombs, 1998; Parsons & Polson, 2000; Schuman, 2002). In other words, Direct Instruction, a model classified as teacher-centered and basic skills-oriented, outperformed other models—models deemed to be cognitive or affective in nature—not only in basic skills achievement, but in cognitive and affective achievement as well. The students in the Direct Instruction programs improved, on average, from about the 20th percentile to the 41st percentile in reading scores alone (Schuman, 2002; AFT, 2002).

DOES EFFECTIVENESS MATTER?

Direct Instruction's empirical superiority did not result in an enthusiastic endorsement, however. In fact, before the findings were officially published, the Ford Foundation commissioned a critique of them and the Department of Education eventually gave a blanket recommendation to all of the models and programs in the study, regardless of academic efficacy (Watkins, 1995). Gene Glass, in a critique of Project Follow Through that was published by the National Institute of Education, claimed that teachers did not "need statistical findings of experiments to decide how best to teach children" (Glass, 1993). A comparable national research initiative of pedagogical practices has not been undertaken since.

OBJECTIONS TO DIRECT INSTRUCTION TEACHING PROCEDURES

Why the backlash? Why were the findings of Project Follow Through so immediately and summarily dismissed? Advocates of Direct Instruction have maintained that the educational establishment had—and has—a strong philosophical bias favoring child-centered pedagogy that is almost dogmatically held regardless of research results (Carnine, 2000; Silverman, 2004). In 2002, a series of focus groups and national surveys commissioned by the Manhattan Institute for Policy Research confirmed the influence of this bias among classroom teachers: 56% of teachers surveyed admitted having a teaching philosophy that was more "student-directed" than "teacher-directed" and only 15% believed it was important to teach students "specific information and skills."

A child-centric approach to education demands that the impetus, direction, and style of instruction be guided by each student's intrinsic motivation to learn and discover. It is a philosophy that largely developed in reaction to a teacher-centric or content-centric approach to education, where the emphasis is on the effective trans-

fer of a systematic body of knowledge or skills. Proponents of this "child-centered" or "progressive" educational approach often attack the use of sequenced, structured instruction as being not only insensitive to the needs and interests of the learner, but also ultimately ineffective in promoting true intellectual development.

Kozloff, LaNunziata, Cowardin, & Bessellieu (2001), however, point out that "the design principles underlying child-centered models like 'constructivist,' 'inquiry curricula,' and 'developmentally appropriate best practices' are at odds with the large body of experimental research on learning". Child-centered approaches like constructivism and whole language reading instruction have been criticized for being unconcerned about academic standards (Kozloff, et al., 2001) and remiss in providing actual instruction to accomplish academic tasks (Gersten & Domino, 1993; McCaslin, 1989; Stahl & Miller, 1989). Students who do not or cannot self-instruct themselves in these pedagogies are left to trail behind in accomplishment, often developing coping strategies in place of actual learning (Gersten & Domino, 1993; McCaslin, 1989). Without the mastery of basic skills, these students develop what Binder (1996) calls a "cumulative dysfluency" where early deficiencies or discrepancies snowball into a pattern of academic failure and rebellion (Kozloff, et al., 2001; Montgomery & Rossi, 1994). This is particularly relevant to minority groups. Recent studies indicate that the achievement gap between White and minority children is evident as early as kindergarten (West, Denton, & Reaney, 2000), and that half the disparity in Black-White scores at 12th grade can be attributed to differences already present in the first grade (Jencks & Phillips, 1998). Furthermore, Delpit (1988) points out that classrooms and schools often merely reinforce the values and standards of the mainstream social culture and the schools' own institutional culture. Lacking explicit instruction, students in the minority or students at-risk face steep obstacles in succeeding in such environments. Put another way, child-centered pedagogies are so dependent on the intuitions of the child that they ultimately hurt the child whose intuitions are at odds with the norms in the school and in the society at large.

WHAT IS DIRECT INSTRUCTION?

If child-centered educational systems are revolutionary reactions to conventional basal instruction, Direct Instruction is a radical reform of them. Instead of attacking the philosophical underpinnings or implications of conventional instruction, Direct Instruction focuses on improving its efficacy. Direct Instruction advocates criticize the scattershot approach of common basal instruc-

tion (Gersten & Domino, 1993), which is geared toward the average student. Other students—those who find the material and/or instruction too difficult or too simplistic—are largely left to adjust or adapt as best they can. Child-centered approaches provide open-ended engagements for students so that they can explore curricular material at their own interest and aptitude; nevertheless, students are still left with most of the responsibility for their learning, including their level of mastery. Direct Instruction, on the other hand, calls for the design of an educational system that adjusts the curriculum and instruction around each student's performance so that every student experiences a high rate of success while adhering to fixed standards of achievement (Gersten & Domino, 1993; Gleason & Hall, 1991; Engelmann & Carnine, 1991). The onus of success, then, has been shifted from the student to the teaching system.

Direct Instruction, then, is not merely an inchoate educational philosophy or ambiguous teaching approach. It is more accurately a system of teaching technologies that have been developed in the pursuit of its fundamental pedagogical goal. In 1976, Rosenshine introduced the term "direct instruction" as part of his examination of behaviorist teaching practices. In analyzing the teaching model developed by Siegfried Engelmann and others, he emphasized its use of task analysis and teacher modeling. Direct Instruction has often thus been misperceived as any systematic instruction with these features (Stein, Carnine, & Dixon, 1998). For the purposes of this article, however, Direct Instruction refers specifically to the teaching model developed by Engelmann and his colleagues—a system that incorporates, but is not defined by the practices identified by Rosenshine.

Unlike most child-centered models, Direct Instruction evolved out of work with students at-risk (Becker & Carnine, 1981; Bereiter & Engelmann, 1966) just as much pioneering work in behavioral instruction grew out of work with students with social, emotional, or mental disadvantages or disabilities (Gardner, et al., 1994; Ullmann & Krasner, 1966; Ulrich, Stachnick, & Mabry, 1970). Out of this work, and guided by the general philosophical approach of Direct Instruction, evolved principles of curricular design, teaching strategies, classroom management, student assessment, and teacher training (Stein, et al., 1998). These principles, in turn, have guided the construction of the commercial materials that are at the heart of Direct Instruction implementation in schools and classrooms (Gleason & Hall, 1991). Direct Instruction, therefore, has several dimensions, and a full grasp of Direct Instruction requires an understanding of the interplay among its several components.

Direct Instruction begins with a clear and systematic presentation of knowledge. To this end, the curriculum is subjected to a rigorous analysis to determine what is needed to be learned and how it can be learned in a logical and systematic manner. This analysis deliberately does not assume background knowledge, but determines how to instruct prerequisite knowledge *explicitly* while linking it to new material (Gleason & Hall, 1991; Stein, et al., 1998). In other words, children who arrive in the classroom with a disadvantage in background knowledge, whether through cultural or personal reasons, are taken into account at the very onset in the development of the curriculum.

The curriculum is organized around generalizable concepts and skills (Kameenui & Carnine, 1998; Stein, et al., 1998)—ideas and learning strategies determined to have the broadest application and most fundamental impact within and across academic disciplines. Indeed, while Direct Instruction is most often implemented within schools to address deficiencies in one or two basic skills (reading or math), its curriculum is designed to be highly interdisciplinary, with different strands of knowledge and skills interwoven across subject areas (Kameenui & Carnine, 1998; Stein, et al., 1998).

The curriculum is also designed to be presented in a specific sequence so that new knowledge is built upon the review, application, and mastery of older knowledge in a manner that is clear, explicit, and manageable (Gleason & Hall, 1991). The sequence of instruction is carefully designed to hold students' attention with new knowledge while providing extensive review in a number of different forms (Gleason & Hall, 1991; Stein, et al., 1998). The method of instruction is also sequenced to provide a gradual transition from a teacher-guided format to more independent learning (Becker & Carnine, 1981; Kameenui & Carnine, 1998; Stein, et al., 1998).

The methods of instruction are as explicitly delineated as the content in Direct Instruction in order to ensure a faultless, efficient, and engaging presentation that is tightly linked to the material presented. Based on the research of best practices and common deficiencies in instruction (Berliner, 1985; Brophy & Good, 1986; Duffy, 1983; Gunter, Denny, Jack, Shores, & Nelson, 1993; Hunter, 1980; Nelson & Johnson, 1996; Rosenshine& Stevens, 1986; Shores, et al., 1993; Stallings, 1980), Direct Instruction provides intensive instructional training—both before and during classroom implementation—as well as specific guidelines for instruction within the curriculum (Gleason & Hall, 1991; Stein, et al., 1998). Direct Instruction is popularly known as a "scripted" curriculum where teachers are given a precise script to follow in presenting content. This scripted format is meant to ensure what in Direct Instruction circles is termed "faultless communication": a presentation that is concise, consistent, unambiguous, and logical even in terms of the language used (Gleason & Hall, 1991; Stein, et al., 1998). The scripted format also ensures the application of instructional strategies characteristic of the Direct Instruction methodology: active student participation, positive reinforcement, brisk pacing, explicit instruction, guided practice, distributed review, and constant feedback (Gleason & Hall, 1991; Nakano & Kageyama, 1992; Stein, et al., 1998).

The typical Direct Instruction lesson involves 8 to 12 students actively responding to scripted teacher instruction for 30 to 45 minutes. Teacher-directed prompts generate 3 to 20 responses a minute from every student; the entire group often responds in unison to specific directions that a teacher has just previously modeled. Instruction is brisk and intensive; though the teacher is following a script, he or she is not disengaged from the instruction, but is constantly monitoring the class, seeking out responses, giving feedback, and directing behavior. Often this teacher-directed format is followed by independent and small group work to provide additional practice and application (Kozloff, et al., 2001).

Students are grouped by ability; however, the grouping is flexible and dynamic (Grossen, 1996; Lott, 1998; Miller, 2001). Students are constantly assessed: at the beginning of the program, during classroom instruction, and within periodic formal assessments (Gleason & Hall, 1991). The curriculum is so designed that students can shift easily to different performance groups based on their success rate within their own particular group. Because students are always placed at a level where they are enjoying around a 90% success rate (Gleason & Hall, 1991), performance measures are not punitive but corrective. As Kozloff, et al. writes:

DI confronts head-on the fact of real differences in students' background preparation and the right of all students to achieve. It does this by providing instruction tailored to the identified strengths and needs of the students.... Therefore, all students have a maximum chance of learning all the material. All can succeed (2001, p. 69).

Direct Instruction's emphasis on student assessment not only ensures individually appropriate instruction, but also student mastery. Coupled with the guided practice and review intrinsic to its sequenced curriculum, Direct Instruction's system of assessment guarantees fluency rather than mere familiarity with the material and skills taught (Kozloff, et al., 2001).

The entire Direct Instruction curriculum is field-tested before it is made commercially available and then periodically field-tested thereafter (Goral, 2001). Instructional scripts, in particular, are revised constantly to ensure that most students within a particular performance group achieve a 90% success rate when instructed according to the script ("Directing Direct Instruction," 1997). Since Project Follow Through, Direct Instruction materials have been developed for most common disciplines throughout the K-12 grades, including reading, writing, math, science, social studies, and higher-order thinking (Adams & Engelmann, 1996; Kameenui & Carnine, 1998).

Direct Instruction programs also insist on extensive training to prepare for teacher implementation. Though Direct Instruction is designed to be practical and straightforward, teachers need to become thoroughly familiar with the system in order to effectively and confidently apply it in their classrooms (Lott, 1998; "Directing Direct Instruction," 1997). In addition to preservice training, Direct Instruction provides supervising coaches to periodically observe and correct classroom instruction, until trainee teachers are comfortable enough with the system to apply it independently (Chenoweth, 2003; Gleason & Hall, 1991). Many teachers go on to become coaches themselves, mentoring their colleagues in the system.

HOW WELL DO DIRECT INSTRUCTION PROCEDURES WORK?

Does the Direct Instruction system work? Several follow-up studies to Project Follow Through have shown that students involved in Direct Instruction programs during Project Follow Through have continued to outperform their counterparts in the control schools (Becker & Gersten, 1982; Gersten, Keating, & Becker, 1998; Meyer, 1984). Former Direct Instruction students had higher rates of high school graduation and college acceptance (Darch, Gersten, & Taylor, 1987; Meyer, Gersten, & Gutkin, 1983). Thaddeus Scott Lott, the former principal of one of these Direct Instruction schools—Mabel B. Wesley Elementary in Houston, TX, was invited in 1998 to give a Congressional testimony about his school's success with Direct Instruction teaching procedures (Lott, 1998). He testified that by 1979 students in the Direct Instruction program had grade equivalent scores 1.5 t0 2.0 years higher than students prior to the Direct Instruction program. In the fall of 1997, Wesley Elementary was one of only 13 schools in the Houston Independent School District whose first graders scored in the top 80% of the national norm in the Stanford 9 reading test. Of those 13 schools, Wesley Elementary had the highest percentage of students on free and reduced lunch, the second highest student mobility rate, and the highest percentage of new or inexperienced teachers.

In 2002 the *Journal of Education for Students Placed At-Risk* dedicated its seventh issue to a series of articles analyzing the effectiveness of recent Direct Instruction programs in schools in Baltimore, MD, Broward County, FL, Fort Worth, TX, and Houston, TX. Though several of these studies were hampered by imperfect implementations (Johnston & Viadero, 2002; Silbert, 2002) or incomplete analyses (Rosenshine, 2002), all of them reported substantial gains in student achievement. Schools in the Broward County study also reported improvement in student behavior. Most of the schools in the studies were designated for the Direct Instruction programs because they were deemed to be underperforming schools with an at-risk student population. In several instances, a school would show particularly dramatic levels of improvement; City Springs Elementary School in Baltimore, MD, for example, went from having its district's lowest reading scores to its fifth highest (Chenoweth, 2003).

Similar case studies have been reported in schools from Pennsylvania to California (Goral, 2001; Graves, 2002; Miller, 2001; Wilson, 2003). In addition, a number of comparative studies over the years have continued to find Direct Instruction an effective model of instruction. Adams' and Engelmann's 1996 review of 34 separate studies showed that the experimental results favored Direction Instruction 87% of the time; other types of instruction only received favorable results approximately 12% of the time. The American Federation of Teachers (AFT, 2002) highlighted Direct Instruction as one of six promising school wide programs in 1998. A 1999 longitudinal review of 24 school reform models (Herman, 1999) found Direct Instruction as only one of three that consistently improved student achievement. More recently, a report by the Pacific Research Institute (Izumi, Coburn, & Cox, 2002) revealed that many of the approximately 20 California schools ranked in the top 40% of the State's Academic Performance Index that have more than 80% of their student population in free or reduced-price lunch programs use a Direct Instruction program or a program with similar methodologies.

A review of the research regarding Direct Instruction in Stein, et al. (1989) found that findings remained consistent regardless of setting or grade level. Direct Instruction has been found to be effective both in general education (Rosenshine & Stevens, 1986) and in special education (Algozzine & Maheady, 1986). It has been shown to reduce disruptive classroom behavior (Nelson & Johnson, 1996) as well as increase student achievement.

A RESPONSE TO CRITICISMS OF DIRECT INSTRUCTION

Nevertheless, Direct Instruction has continued to draw the ire and criticism of educators and academics, who have discounted the research to snipe about its core pedagogical design. Most of these critiques are of a qualitative nature; Direct Instruction is cast in pejorative terms such as, "dehumanizing," "robotic," and "rigid" (Chenoweth, 2003; Garza, 2003). Cazden (1983) complained that Direct Instruction "can only be implemented in an authoritarian, manipulative, bureaucratic system."

A close examination of the few research studies that find Direct Instruction ineffective or problematic reveals much about the fears and misperceptions Direct Instruction generates among this vocal majority of the educational establishment. Among the most oft-cited studies critiquing Direct Instruction is Schweinhart, Weikart, & Larner's research on the effect of Direct Instruction on preschool children's social abilities (1986b). In this study a sample of poor children was randomly assigned to one of three preschool programs: a traditional nursery school, a child-centered program designed by High/Scope, and a program roughly following Direct Instruction principles. Although students in the Direct Instruction program outperformed the others academically, more students in the Direct Instruction program were shown to have emotional problems and more were engaged in juvenile delinquency by the age of 15. Schweinhart, et al. (1986b) posited that the authoritarian, directive nature of Direct Instruction prevented students from learning how to regulate themselves and discovering how to socialize with others.

A follow-up study by Mills, Cole, Jenkins, & Dale (2002) found that when addressing the common criticisms of the Schweinhart study—having too small a sample size, not representing a genuine commercial program of Direct Instruction, not fully randomizing assignments (Bereiter, 1986; Gersten, 1986; Viadero, 1999)—they could not replicate Schweinhart's results. Instead, their prospective longitudinal study found no significant difference in eventual rates of juvenile delinquency between the attendees of the Direct Instruction preschool program compared to those of a child-centered preschool program. In their conclusion, Mills, et al. showed that this discrepancy can easily be explained when accounting for gender differences in the sample populations; Schweinhart's study had a disproportionate number of boys in the Direct Instruction program than in the other programs.

Despite the design flaws in Schweinhart, et al.'s 1986b study, others readily cited its results as evidence of Direct Instruction's harmful effect on the social development of children (DeVries, Haney, & Zan, 1991; DeVries, Reese-Learned, & Morgan, 1991). A New York Times article proclaimed that Direct Instruction was an "early education pressure cooker" that led to violent behavior (Hechinger, 1986). These early reactions to the study belie the romanticization of childhood which is at the heart of child-centered pedagogical philosophies. Children are seen to need a natural development free from undue intervention or direction; to do otherwise is tantamount to stunting their growth and robbing their souls. Within this paradigm, the teacher-directed structure of the Direct Instruction classroom represents a depersonalized authoritarian society—something children must build natural defenses against to maintain their individualism and internal moral compass.

A more recent study by Ryder, Sekulski, & Silberg (2004) found that early elementary students performed less well in reading comprehension within a Direct Instruction program than in an open-ended classroom curriculum. The Ryder study has been criticized for many of the same design flaws as the Schweinhart study - a limited scope that could skew results, incomplete data, a flawed Direct Instruction implementation, and possible imbalance in matching students from the experimental and control groups (Manzo & Park, 2004). Nevertheless, the study has also generated incendiary reactions against Direct Instruction (Manzo & Park, 2004). In his conclusions, Ryder recommended that in teaching poor urban children, classrooms should enact such child-centered practices as allowing students to explore personal interests, developing projects with student input, and personalizing instruction to student experiences while avoiding Direct Instruction practices such as monitoring student time on task.

The underlying perception, of course, is that the instructivist approach of Direct Instruction is limited in effectiveness to reasoning and skills of the lowest order. Although Direct Instruction has been shown to improve overall reading scores, Ryder and others (e.g., Heshusius, 1991; Palincsar, David, Winn, & Stevens, 1991) imply that Direct Instruction achieves little beyond the mere decoding of words on the page. Direct Instruction is seen to promote mechanistic tasks and applications over complex cultural activities that require reflection, experimentation, and personal exploration; the individual child is again subverted to the lockstep demands of a programmatic social order. A more insidious implication is that urban children may gain skills in Direct Instruction programs but at the cost of their ability to discern and critically think about the world around them.

Such fears and assumptions, however, lack evidential

proof. There have been no consistent findings that reveal the depression of esteem, social development, ethical development, critical thinking, cognitive ability, or cultural participation through Direct Instruction. Stein, et al. (1998) argue that many of the assertions against Direct Instruction contain a fundamental confusion between rote instruction and explicit instruction. Scripted Direct Instruction lessons are not based on the mass memorization of arbitrary facts. Instead, a fundamental design principle within the Direct Instruction curriculum is the conveyance of generalizable strategies and concepts, though this is done in an explicit and sequenced manner with constant review and assessment to ensure mastery.

An analogy can be drawn to the mastery of chess, a highly complex activity that requires both skill and intuition. Instead of learning the play of chess from countless games with little knowledge of even the basic rules, the Direct Instruction approach proposes that the rules and basic strategies be taught and modeled explicitly and in a manner that builds logically from simplified scenarios to more complex puzzles of stratagem. Far from being unnatural, such methodologies of mimicry, practice, and logical progression are timeworn practices of social instruction. The guidance of a systematic sequence does not rob autonomy or reflection, but concentrates it on the skill or concept at hand.

Similarly, the scripted format of Direct Instruction does not replace the creativity, initiative, and acumen of the teachers, but frees them from the technical complexities of maintaining a consistent and logical pattern of instruction (Goral, 2001; Stein, et al., 1998). With an instructional script that is research-based and field-tested, teachers are allowed to pay more attention to their students and respond to them in a manner that is more timely, helpful, and positive. A number of anecdotal teacher testimonies reveal that teachers often find their classroom experience more rewarding and meaningful because of Direct Instruction's effectiveness with all types of students ("Directing Direct Instruction," 1997; Goral, 2001; Miller, 2001).

A PLEA FOR ACTION FROM MINORITY EDUCATORS

Nevertheless, according to Viadero (1999), only about 150 schools across the United States use a Direct Instruction program. Much of this resistance comes from a misperception about the nature and effects of Direct Instruction, either from administrators, teachers, or parents. Often a Direct Instruction program is demanded by some party familiar with its research-tested effectiveness without the proper understanding and buy-in from other members of the school community ("Directing Direct Instruction," 1997; Goral, 2001). Teachers, in particular, often balk at the scripted format of Direct Instruction and, without proper training, will veer from the script as they see fit (Lussier, 2003). Furthermore, administrators may find it difficult to receive the funding for commercial Direct Instruction materials; Direct Instruction curricula have consistently been rejected as approvable textbooks in both Texas and California (Lott, 1998; Wilson, 2003), the two largest—and among textbook publishers, most influential—Boards of Education in the country (Ravitch, 2003).

From among the successful implementations of Direct Instruction, however, several lessons can be learned:

1. Administrators must be thoroughly versed in the program and its advantages (Lott, 1998). A successful Direct Instruction implementation needs an advocate at the highest possible level to defend its use and effectiveness against the inevitable criticisms it will draw. Such an advocate needs to be aware of the data that support the program and can drive the reform (Kozloff, et al., 2001).

2. Administrators need to carefully consider what adjustments need to be made to accommodate the Direct Instruction program (Lott, 1998; Stein, et al., 1998). Besides purchasing concerns, consideration must also be given to such issues as performance groupings, small group instruction, the coordination of teacher training, implementation evaluation, and so on (Kozloff, et al., 2001).

3. Teachers need adequate training (Lott, 1998; Viadero, 1999). University teacher preparation programs provide, if anything, a child-centered bias that works against the Direct Instruction system. Engelmann, the primary architect of the Direct Instruction model, estimates that it takes teachers about two years to master the Direct Instruction classroom approach (Viadero, 1999). A common problem among Direct Instruction implementations is the lack of appropriate training before and during the use of Direct Instruction in the classroom.

4. Reforms need to be made gradually and with the confirmation of measured success (Kozloff, et al., 2001). Implementation initiatives should include a component of record-keeping and performance measurement to track the program's success. Changes should be made gradually and systematically, bolstered by such evidence.

In his article "Why education experts resist effective practices," Carnine (2000) cites the work of Theodore M. Porter (1996) in examining the maturation of professions and academic disciplines:

An immature profession is characterized by expertise based on the subjective judgments of the individual professional, trust

based on personal contact rather than quantification, and autonomy allowed by expertise and trust, which staves off standardized procedures based on research findings that use control groups. A mature profession, by contrast, is characterized by a shift from judgments of individual experts to judgments constrained by quantified data that can be inspected by a broad audience, less emphasis on personal trust and more on objectivity, and a greater role for standardized measures and procedures informed by scientific investigations that use control groups. (p. 9).

Carnine goes further to argue that education remains an immature profession, subject to the personal preferences and philosophical biases of an influential cadre of experts and professionals. The fate of Project Follow Through illustrates this, as do other instances of the resistance Direct Instruction has faced from the educational establishment. Because of their professional influence over schools, teachers, and policies, advocates of child-centered pedagogies have been able to turn a blind eye to the research showing the effectiveness of Direct Instruction over their own practices.

The growing interest in standards-based reform, however, has drawn attention to the realities of the achievement gap: that there is a disheartening percentage of underperforming students within Black and Latino ethnicities, that minorities continue to trail the White mainstream in academic achievement, and that this achievement gap directly translates into the perpetuation of poverty and disenfranchisement for a growing segment of the American population (Kober, 2001). The mounting evidence has made this problem undeniable. Howard (2003) maintains that the solution must also be data-driven; research and student assessment data must shape curriculum and instructional strategy. He argues that though educators are often averse to the accountability and algorithmic strategy such empiricism brings, true professionals are not put off by the numbers. They see them, instead, as a tool to target their students' needs and address their deficiencies. In other words, they go with what works.

The fact that minority children's' academic achievement scores in the United States do not match those of the majority of children is a cause of great concern. The fact that teaching techniques exist that can reduce or eliminate this discrepancy, but are not used, is a cause for anger. The purpose of the article is to arouse the interest of minority educators in an approach to teaching that has repeatedly and enduringly benefited minority children. The dream of the authors is that minority educators, whether teachers, school administrators, or professors of education, will provide leadership to an educational re-

form that cries out to be adopted.

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Author Note

Tom Kim is a graduate of and Saul Axelrod is a professor of Education at Temple University. Reprints may be obtained from Saul Axelrod, Department of Curriculum, Instruction, and Technology in Education, Temple University, 441 Ritter Hall, Broad and Montgomery, Philadelphia, PA 19122. Tel.: 215 - 204 – 6060. Email:axelrod@temple.edu