A Behaviorist's Response to the Report of the National Commission on Excellence in Education

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The National Commission on Excellence in Education was charged with the responsibility for examining the quality of education in America. Its report, "A Nation at Risk" (1983), contained a set of alarming facts about the status of American education. These were followed by a set of five major recommendations for improving the situation. They related to (1) content, (2) standards and expectations, (3) time, (4) teaching, and (5) leadership and support. The present paper examines each of the set of recommendations from a behavior analytic perspective. It notes what the field of behavior analysis can say on the subject now; what it potentially might address and remediate at this time; what it might explore and predict; and in general what it can do to make a difference. Behavior analysis has made many important discoveries that should be communicated to educators and the public, and it has tools and concepts for further contributing toward the improvement of education.

To the accompaniment of considerable publicity in April, 1983, a report was released by the National Commission on Excellence in Education. It was entitled "A Nation at Risk"—an apt title because, as the Commission cited, the future of our nation is being placed in severe jeopardy as a result of the erosion of its educational effectiveness. Data were cited to buttress that contention, and a number of recommendations were offered, such as the endorsement of merit pay for teachers. The report ended with a "final word"—perhaps better characterized as "a plea"—that all segments of our population give attention to the implementation of the committee's recommendations. It called upon the National Academy of Sciences, the National Academy of Engineering, and other scholarly scientific and learned societies for their help and effort (p. 36).

Let us begin with that final plea, because behavior analysis has much to offer on the subject of improving education. By applying the technology of behavior change that our field has evolved, edu-

cation everywhere could become far more efficient and effective than it currently is. As Skinner (1984) has recently described, what needs to be done is to: (1) be clear about what is to be taught, (2) teach first things first, (3) let students move at their own individual paces, and (4) program the subject matter. Permutations on this theme have been offered by many behavioral educators and the data continually support the value of such features. Unfortunately, whether for political, territorial, theoretical, philosophical, or other reasons, or because we have not communicated adequately with those genuinely concerned with improving the quality of education, the Commission and the public it represents apparently have overlooked the role that behavioral technology can play in improving education. While we continue to advocate for the implementation of that technology and to explore, refine, evaluate, and disseminate our findings about effective educational variables, one thing we should do right now is to examine the Commission's set of recommendations from a behavior-analytic perspective. For it is the recommendations of this and other recently appointed commissions that have captured the attention of the public and the educational community. Our response could make a difference.

To see how behavior analysis relates to the Commission's report, some of the risks cited by the Commission will be

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listed; to those will be added the general role that behavior analysis should be able to play. Next the Commission's findings and five major sets of recommendations are cited. To each I share my perspectives of what behavior analysis (1) confidently can say on the subject now, (2) has a good potential for addressing and remediating in the near future, (3) needs to explore further if our educational backsliding is to be curtailed and indeed reversed, (4) enables us to predict about the implementation of the Commission's recommendations and how those recommendations might be modified, and finally (5) what we, as behavior analysts, can do to make a difference.

THE INDICATORS OF RISK

Here are some of the Indicators of Risk cited by the Commission:

International comparisons place the achievement of American students far behind that of other industrialized nations. (On 19 academic tests, American students were never first or second and were last seven times.)

Some 23 million American adults are functionally illiterate by the simplest tests of everyday reading, writing, and of comprehension.

About 17 percent of all 12-year olds in the United States can be considered functionally illiterate—among minorities this may run as high as 40 percent.

Achievement test scores of high school students are lower than 26 years ago when Sputnik was launched.¹

SAT scores have demonstrated an unbroken decline from 1965 to 1980, with College Board scores and tested achievement of college graduates showing similar trends.

The achievement of gifted students does not match their tested ability.

Other data are offered to show that military recruits need to be given millions of dollars worth of remedial training and that our students do not possess "higher order" intellectual skills, such as drawing inferences from written materials, writing persuasive essays, or solving multi-step mathematical problems. These deficiencies are juxtaposed against a recognition that skills in the use of competent com-

puter controlled devices, robotics, lasers, and other advanced technical equipment will be increasingly required.

THE ROLE OF BEHAVIOR ANALYSIS

We know that behavior analysis has much to say about improving the quality and amount of learning by students for, by extrapolating from fundamental behavioral principles, our field has helped develop and implement many programs, packages, and strategies that have successfully promoted rates and levels of student academic achievement and social performance. Among these are: "Direct Instruction" (Becker & Carnine, 1981); "Personalized System of Instruction" (PSI) (Johnson & Ruskin, 1977; Keller, 1968); programmed texts and computer software; classroom management systems like CORBEH's (Center at Oregon for Research in the Behavioral Education of the Handicapped); Behavior Management programs; PASS (Program for Academic Survival Skills) (Greenwood, Hops, & Walker, 1977); and CLASS (Contingencies for Learning Academic and Social Skills) (Walker & Hops, 1979); token economies (Sulzer et al., 1971); self management (McReynolds & Church, 1973); contracting (Homme et al., 1970); home report cards (Saudargas, Madsen, & Scott, 1977), and so on. Perhaps even more important, we also recognize that we have methods for discovering and refining new strategies for teaching, from the most fundamental to the most advanced and sophisticated concepts and skills, and from teaching numerical concepts, letter recognition, and problem solving strategies to the developmentally and academically delayed, to brainstorming, organizational, and abstract concept formation to youngsters, college students, and other adults.

Roy Mayer and I have just completed a new text entitled *Achieving Educational Excellence with Behavioral Strategies* (Sulzer-Azaroff & Mayer, in press). We have both been astounded by the burgeoning of educational findings and tech-

¹This trend may be beginning to reverse, as scores have begun to improve recently.

niques that our field has accomplished over the past 15 years since we began preparing our first book for educators (Sulzer & Mayer, 1972). In the late sixties and early seventies, all we had to go by were the basic principles of behavior that had been discovered in the laboratory, a few applications of those principles dealing with the issues confronted by related disciplines, such as mental health, mental retardation, speech pathology, and other areas of clinical practice, plus a sprinkling of studies conducted directly in school settings.

Today, many hundreds of behavioral reports of strategies for improving students' achievement and deportment have been published. For example, sufficient material of good quality is currently available to have permitted us to write chapters, or at least major sections on instruction in reading, spelling, arithmetic, handwriting, expository writing, and physical education. More was available on social studies, a bit on science, much on music education and others. Methods of classroom management, for motivating accomplishment, and for preventing or coping with conduct problems have also proliferated. We have been able to include sections on social skills training, management of conduct in the classroom, as well as in the lavatory, school bus, lunchroom, and playground, and were able to cite initial investigations into methods for preventing violence and vandalism in schools (e.g., Mayer, et al., 1983). Successful ways of training and sustaining high levels of skilled performance by staff are available in sufficient quantity to have permitted a full chapter on that subject. Findings like these need to be communicated to educators, the public at large, and public policy makers, and we must study methods to induce their sustained application.

AVAILABLE RESOURCES

Just as behavior analysts begin by examining past history, present circumstances, and available resources, the Commission appropriately identified the availability of many essential raw materials waiting to be "mobilized through

effective leadership" (p. 15). The Commission has cited: the natural abilities of the young; parental concern; our national commitment to high rates of retention and full access to education for all; the American dream that superior performance can raise one's state in life and shape one's future; dedicated teachers; a better understanding of learning and teaching; ingenuity of policy makers, scientists, educators, and scholars in formulating solutions "once problems are better understood" (p. 15); the belief that progress for education pays off, plus the means to make the investment; the tradition of the Federal government supplementing local, regional, and state resources to foster key national educational goals; and the voluntary efforts of many individuals and groups. But above all, the Commission cites public support for and commitment to education and its constructive reform.

While we might agree that these resources exist, they are not always readily utilizable. One of our primary goals, then, should be how to make the most of them. Regarding the judicious use of natural resources, behavior analysts have made some exciting discoveries. They have analyzed methods for conserving energy, as in electricity and gasoline consumption (Geller, Winett, & Everett, 1982). They have shown how to harness human resources by looking into natural social contingencies, such as teaching students to recruit reinforcers from teachers (Stokes, Fowler, & Baer, 1978) or arranging social groups to produce support from within, as Frankowsky and Sulzer-Azaroff (1978) showed with groups of retarded adolescents working under interdependent contingency arrangements (Litow & Pumroy, 1975). What remains to be done, however, is far more extensive. To progress toward educational excellence, we need to identify and analyze ways to arrange those resources contingently on the behavior of students, educators, parents, members of the local business and professional community, and the public policymakers.

Consider one hypothetical example. Data have convinced us that the Direct

Instruction Model of Follow-Through holds great promise for improving the performance of economically disadvantaged and other youngsters in basic skills such as reading, language, and arithmetic. Yet funding for this program has been threatened with curtailment. Appropriate questions to ask might be "Does letter writing to our Congressmen have an effect? If so, what schedules would prove most effective in reversing this threat?" The dependent measures are available. One only needs to plot the voting records of our Congressmen *vis-à-vis* support for "Follow-Through," as a function of the various schedules of letter writing. We could compare how effectively their positive votes are affected by single, large-massed versus spaced mailings in smaller quantities; prompts versus reinforcing feedback for related legislative support; modeling or vicarious reinforcement (so and so did vote for this program and he/she or the party will receive my vote at the next election) versus other conditions, and so on. Just as Weisberg and Waldrop (1972) analyzed schedules of productivity among congressional delegates, we can and should analyze these sorts of questions with respect to variables that can influence legislation favoring fuller utilization of valuable educational resources.

FINDINGS OF THE COMMISSION

Here, the findings of the Commission and its recommendations are examined more closely, followed by my reactions and suggestions. Regarding *content*, the Commission found that:

The high school curriculum has been homogenized and diluted to the point that it has no central purpose. (p. 18)

Percentages of students who take and complete various courses are way down, with only 31% of recent high school students finishing intermediate algebra; 13%, French I; 16%, geography; and only 6%, calculus.

25% of the credits earned by general track high school students are remedial, or for non-scholastic experience outside of the school setting and [my words] other subjects not traditionally academic.

The report discusses *standards and expectations*, defined as the level of knowl-

edge, abilities, and skills school and college graduates should possess, as well as the time, hard work, behavioral deportment, self-discipline, and motivation essential for achievement. Broad deficiencies were noted in these areas. Cited to support the conclusion that expectations have been dropping was such evidence as:

Major declines in the amount of homework assigned.

The amount of time spent in mathematics, science, and geography by science-oriented United States high school students is one third of that of their peers in other industrialized nations.

The fact that no state required a foreign language, 35 required only one year of math, and 36 required one year of science for a diploma, according to a 1980 survey.

The availability of lots and lots of (and presumably too many) electives.

The prevalence of low minimum competency standards.

Required admission of every high school graduate by four-year public colleges in one-fifth of the states, regardless of levels of mastery.

Declining selectivity among more "selective" colleges.

Reduced reading levels in textbooks.

Unchallenging texts and dramatic decreases in expenditures for instructional materials.

Findings regarding *time* were that, compared to other nations, students in the United States spend much less time on school work. The time they do spend is used ineffectively and schools do not do enough to teach study skills or to develop students' willingness to spend more time on school work. Data on number of required school days and hours, and how they are spent were cited to support the contention.

Similarly, regarding *teaching*, low levels of preparation and salary, and shortages of personnel trained in certain specialty areas were cited as evidence of deficiency in that realm.

RECOMMENDATIONS BY THE COMMISSION, AND REACTIONS

Against an assumption that adjustments will be made to meet the needs of a broadly diverse student population, the Commission has offered five recommendations in the areas of (1) content, (2)

standards and expectations, (3) time, (4) teaching, and (5) leadership and fiscal support.

Content

In terms of content, minimum requirements would be strengthened to include much more English, math, science, social studies, foreign languages, and others. Also, one-half year of computer science is advocated.

As public education is structured currently in the United States, content is supposed to be decided by our local and statewide elected officials, presumably with input from the educational and professional community. We should express our opinions about educational content to our school boards or by becoming members of such boards ourselves. Our profession should do more to develop instructional content. The Commission has encouraged learned societies to revise and improve curriculum materials. Most of us would agree that a knowledge of the science of human behavior is a terribly important aspect of the realm of natural science. The American Psychological Association aids in the development of high school curriculum material in psychology. Should not we do the same for our branch of the field?

As an aside, the report denigrates courses such as bachelor living (p. 20) and training for adulthood and marriage (p. 19). Although courses designed to prepare students for adult responsibilities should not supplant the basic academic subjects such as English, science, and math, if principles of behavior illustrated with applications to child rearing constituted a key aspect of that type of course, future parents might learn how to avoid resorting to child abuse, and become more effective managers of their children's social and academic learning.

Standards and Expectations

In terms of *standards and expectations*, several of the Commission's recommendations should be dear to the hearts of all behavior analysts. Some relate to specificity of requirements and

standards, conditions we know to be important to achieving educational objectives.

One recommendation talks about the participation of professional societies in the preparation of texts (mentioned previously); another asks that funds be provided for "thin market" areas, to be used for materials for handicapped, gifted, and other special students; and another requests that publishers furnish evidence of the quality and appropriateness of textbooks based on results from field trials and credible evaluations (p. 28). The last is one we would all enthusiastically endorse! It sounds like a position Mayer and I have taken regarding the publication of programmed instructional material (Sulzer & Mayer, 1972, pp. 73-75).

A final element of the section on standards and expectations emphasizes that "new instructional materials should reflect the most current applications of technology in appropriate curriculum areas, the best scholarship in each discipline, and research in learning and teaching" (p. 29).

The last suggestion should be especially relevant to us. As our field matures, we continue to discover much about effective learning and instruction. For example, functioning in a teaching role is an excellent way for students to learn (Greer & Polirstok, 1982); errors may beget errors and other nasty reactions (e.g., Reese, Howard, & Rosenberger, 1977); certain kinds of prompting and fading techniques teach particular discriminations better than others (e.g., Etzel et al., 1982); rapid pacing of instruction is important to learning (Carnine, 1976); general strategies of problem solving aid performance (Etzel et al., 1982), and much, much more.

We learn of such research findings by reading our behavioral journals, such as *The Behavior Analyst*, *The Journal of Applied Behavior Analysis*, and *Education and Treatment of Children*; our behavioral texts, such as international handbooks and yearbooks summarizing behavioral research; and, occasionally, in journals directed toward audiences of educational researchers. But how often

are these important findings communicated to curriculum developers and educational personnel? Not as frequently as they should be.

As in other cases, we probably can explain why so many of us speak to other behaviorists in preference to the educational audience who should be consuming these findings. Attention and respect from a highly regarded professional peer is probably more reinforcing for many of us than skeptical and occasionally antagonistic reactions from people whose orientations differ from our own. Yet, our behavior is often "rule governed" (Lowe, Beasty, & Bental, 1983). Rules can remind us that a delayed payoff will compensate for more immediate discomfort. In similar fashion, communicating to audiences of educators can also become governed by similar rules if we arrange contingencies to support them. For instance, we can encourage our peers to reinforce statements like, "If I communicate my findings to curriculum developers, even though some may give me grief, in the long run students will benefit." We then should reinforce the actions corresponding to that statement. I am not advocating that we desert our behavioral collegial audience, just that we communicate with *both* behavioral scientists and educational practitioners. Simultaneously, of course, we need to analyze experimentally variables that promise to aid the adoption of more effective technologies of instruction by the educational establishment.

Time

The third recommendation of the Commission suggests that more *time* be devoted to learning the new basics. It says that students should have more homework and should be taught the skills to enable them to use their time more effectively. The school day and year should be lengthened both for students at large and particularly for those with special needs. Discipline problems should be reduced via "firm and fair" codes of conduct enforced consistently and by placing especially disruptive students elsewhere. Absences and tardiness should be treated with clear incentives and sanctions to re-

duce lost time. Administrative burdens on teachers should be reduced and students grouped, placed, promoted, and graduated according to instructional needs, rather than on the basis of age.

Although behavior analysts recognize that simply spending time is no guarantee that learning will increase (after all, the more you practice errors, the greater the difficulty in remediating them), we do know about ways to enhance the efficient use of what time there is available. This can be done by increasing the proportion and amount of time students spend engaged in quality learning activities. Here are some examples:

From the Distar developers (Becker & Carnine, 1981), we know how to teach basics more effectively and in less time than with conventional instruction.

Programs like CORBEH (Walker & Hops, 1979) and other systems of classroom management and packages for social skills training have enabled disciplinary problems to be treated and avoided.

From behavioral research done in organizations (e.g., business, industrial, and educational), we are finding out how to improve attendance and punctuality by students, as well as by staff—another important way to improve educational efficiency overlooked by the Commission.

From investigations of stimulus control and of reinforcement, we are learning more about cost-effective strategies for establishing "rule governed" behavior such as evaluating one's own academic work and conduct (Rhode, Morgan, & Young, 1983).

From the extensive body of literature on individualized instruction—PSI (Personalized System of Instruction, Johnson & Ruskin, 1977), IPI (Individually Prescribed Instruction), CAI (Computer Assisted Instruction), and so on—we have long since learned how to match instruction to student needs and preparation. We are finding out about how to promote high rates of progress, accuracy, transfer, and maintenance of learning, and how gradually to turn over the management of instructional time to students themselves.

Regarding home-school relations, behavior analysts have long been interested in involving parents in promoting their children's skills, learning, deportment, attendance, punctuality, and other ingredients for educational success. We have also been finding out more about how to train and manage parents' continued effective involvement in that pursuit and much, much more.

Yet, despite the voluminous lists of findings on effective and efficient expenditure of educational time, a great deal more remains to be done. Demonstrating that a particular strategy works better than none at all is one important accomplishment. Showing that the strategy func-

tions in a superior way to another, in terms of learning, retention, transfer, utility, time, and so on, is something very different. We have done lots of the former, but need to do much more of the latter.

Fortunately, our familiarity and comfort with repeated measures and within-subject experimental designs permits such comparisons to be made. Here is one example: In some of his language training activities with autistic children, Ricardo Barrera noticed that those children who were echolalic (who tended to parrot what others said) seemed to acquire oral vocabulary more rapidly when instructed by means of total communication than by sign language alone (Barrera & Sulzer-Azaroff, 1983). To test his speculation, he located three children who had echolalic speech and compared the two training techniques, using a simultaneous treatment design. One mode of instruction was used to teach two separate lists of words, while another mode was used to teach two other lists. He found that regardless of the characteristics of the words selected (their complexity, iconicity of the sign, and so on), total communication did the job better. Similar comparisons might be conducted, with different prompting and fading techniques, reinforcement schedules, orders of programming, and so forth.

Our field also needs to find out much more about optimal arrangements for prompting generalization or "transfer," although Donald Baer and his colleagues and others have already made some especially important discoveries here (e.g., Fowler & Baer, 1981; Stokes & Baer, 1973). We need to learn more about teaching students to arrange and manage their own study time efficiently, and much, much more. We should discover as much as possible about the outcomes of particular instructional, motivational, or management strategies—not only their influences on the key target variables, but also how well they are accepted, how much they cost in time and effort, and about any beneficial or detrimental side-effects. Such information will inform us of the practicality of the strategy and provide us with important information for

any necessary persuasive argument in favor of its future adoption. While we are at it, someone might begin to investigate how to convince taxpayers to invest in the longer educational calendar and teachers to accede to a workday lengthened beyond their already more than full-time commitment.

Teaching

The Commission's next recommendation deals with improving the preparation of teachers and with making teaching a more rewarding and respected profession. The section includes seven parts: specifics regarding college training of teachers for demonstrable competence; competitive performance-based salary increases and other personal "incentives" and "reward" systems; eleven-month contracts; career ladders; involvement of non-school personnel resources; incentives to attract outstanding teachers and involvement of master teachers in designing preparation programs and in supervising teachers during their probationary years.

Quite a few behavior analysts may applaud notions such as these, as the recommendations incorporate many of the features we know to be consonant with effective training and management of personnel. Yet, we must be cautious while awaiting the results of empirical tests of such suggestions. Even more preferably, we might engage ourselves in the process of functionally analyzing the influence of these variables upon the educational achievements of students.

Leadership and Fiscal Support

To the set of four areas, the Commission added a fifth to its list of recommendations. It calls for the leadership and fiscal support to bring about the reforms the Commission has proposed. Supported by the community via professional development and other resources, principals and superintendents should be able to persuade, set goals, and develop community consensus behind them.

Here is my reaction as a behavior analyst: Examining the interplay among the various contingencies operating within

organizational systems, many of us have begun to examine ways to harness the support of their membership. For example, a group at the University of Massachusetts is studying ways to evoke peer support among workers for safer performance on the job. Behavior analysts have become concerned with the reduction of health risk factors and environmental issues. They have also studied how to influence performance in the open community (Martin & Osborne, 1980). In addition, we might profitably analyze the variables hypothesized by the social psychologists to be influencing community involvement and support. By analyzing antecedents, behaviors, and consequences, for example, we might examine how a particular advertising campaign and public recognition for involvement increases citizens' active participation in educational support activities.

Within the recommendations on this topic, the Commission also prescribed the roles of state and local officials, particularly in terms of financing of the schools, and incorporating proposed reforms within educational policies and fiscal planning. The Federal Government was asked to help meet the needs of students with special characteristics, such as the disadvantaged, minorities, talented and gifted, and the handicapped. The Federal Government was also charged with other important functions. These included: identifying the national interest in education and helping fund and support efforts to protect that interest; protecting the constitutional and civil rights for students and personnel; collecting data and statistics; supporting curriculum improvement; supporting research on teaching, learning, and the management of schools, and of key teacher training areas; and providing student financial assistance and research and graduate training, with "... a minimum of administrative burden and intrusions" (p. 33).

While we might enthusiastically concur with these latter points, funds should not be disbursed for those purposes unless the recipients are accountable for how those funds are used. This means demonstrating that the recipients are accom-

plishing specific pre-stated purposes, as well as producing or having the long range potential for producing more cost-effective outcomes. With our well-established methodology of intensively analyzing behavior over time, our field is particularly well equipped to furnish such accountability. Through our research reports and grant proposals, we can continue to model responsible accountability, as well as to teach and persuade our audiences about how important experimentally-based accountability is and how it best can be accomplished. Galen Alessi (1983) modestly proposes independent quality assurance commissions to audit educational quality—a provocative notion.

The last portion of the Commission's fifth section calls upon educators, parents, and public officials to assist in bringing about the educational reform proposed in this report. "Excellence costs," the Commission admonishes, "but in the long run, mediocrity costs far more" (p. 33). Few would deny the wisdom of those words, but as students of behavior we know that unless other forces are brought to bear, mediocrity is likely to continue. Why? It is supported by the immediate contingencies that enable educators and the public to avoid the necessity for taking responsibility and providing funding. We are learning, however, from a number of experimental analysts who work in the laboratory, how antecedents and consequences can be arranged effectively to promote selection of delayed in preference to immediate payoffs (e.g., Richards, 1981). We should try to extend that work into the applied setting. It might be difficult to identify and manage sufficiently powerful reinforcers, but we have met such challenges successfully in the past.

CONCLUSIONS BY THE COMMISSION

The Commission has recommended several ways for improving education in this nation. The report ends with a statement about a number of our nation's major educational successes, such as those in technology and science. It also exhorts

students and parents to respect intelligence, achievement, and learning and not to tolerate the shoddy and second rate. Parents are encouraged to demand the best educational opportunities for their children, but above all to set a "... living example of what you expect your children to honor and emulate" (p. 35). This, the parents are told, can be done by their exhibiting a commitment to learning in their own lives, conveying the message to their children "... that excellence in education cannot be achieved without intellectual and moral integrity coupled with hard work and commitment" (p. 35).

To this suggestion of parental modeling, who could fail to respond, "Amen"? Yet is such an exhortation likely to be heeded? Only if adult studying and learning is reinforced, not, as is currently the case, only infrequently and after lengthy delays, but instead regularly and frequently by events that the community could take part in arranging, such as public recognition, the acquisition of immediately utilizable skills, and other creative measures. Similarly, learning for students can only be rewarding if they can consistently be challenged and succeed, thereby reaping the benefits of their efforts.

AUTHOR'S SUMMARY AND RECOMMENDATIONS

As scientists we are trained to be skeptical, so we may find ourselves critiquing the findings and conclusions of the Commission. Nevertheless, of one fact we must all be certain: Students can learn in school more effectively and efficiently and with greater enjoyment than they currently do. To aid in the accomplishment of this goal ABA members hopefully will:

Help to identify and to capitalize on the effective use of *natural human and material resources* within the educational establishment.

Further develop, evaluate and revise high school *curriculum materials* on principles of behavior. These can be illustrated with examples of how they may be applied in areas of present and future relevance to the students, such as self-management, interpersonal skills, parenthood, and others. The strategies for conveying the content should incorporate those that are most promising—not just reading and lectures, but also modeling of exem-

plary performance and arranging for reinforced practice of skills in the actual or simulated field situation.

Continue our basic and applied examination of learning and teaching, seeking optimal arrangements of contingencies in order to promote more effectively and efficiently all sorts of educational performance, such as "rule-governed" and other behavior under appropriate stimulus control.

Maintain and strengthen our activities in developing programs of management and instruction for "thin market areas" such as for students having developmental, perceptual, and social disabilities. Populations especially in need of such programs at this time seem to be those with physical, auditory, and visual difficulties, and the gifted. We might also investigate strategies for obtaining funding to support efforts for serving the gifted and other underserved special groups.

Display our methods of evaluation as models for curriculum developers and instructional designers.

Communicate our strategies and findings via media that reach the latter groups, as well as educators, the general public, and policy makers.

Persist in our efforts to promote more efficient and effective use of instructional and learning time in and outside of school.

Functionally analyze the influence of the strategies recommended by the Commission to determine how effectively those methods actually do operate to improve teacher preparation and performance and especially, how they influence consequent *student learning*. The time now seems appropriate to examine how well merit pay, career ladders, performance-based salary increases, and other incentive systems work. We should be prepared, though, to experience major difficulty here. Willing subjects and financial support for such investigations may be difficult to obtain. Whether or not we can do so will be one test of the validity of the impact of the Commission's report.

The National Commission on Excellence in Education has proffered a challenge to the public, to the educational establishment, to scientific and professional groups such as the Association for Behavior Analysis, and to policymakers. As an organization and as individuals we can take steps to try to make the response to this challenge as productive as possible.

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