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ABSTRACT

Curriculum alignment means determining precisely what is intended to be taught, teaching that specifically, and measuring specifically what was taught. This paper contends that the alignment of objectives, actual teaching, and the means and content of testing are essential to effective schooling. The logical arguments of three authorities--Wilbur Brookover, Alan Cohen, and George Behr--are presented in support of the idea of alignment. Four techniques suggested for approaching the alignment problems recognize the complexities of the school context and the probable necessity of dealing with some of the elements of alignment as prerequisites. These are: (1) spelling out the implications of goals and objectives in behavioral terms; (2) content analysis of tests; (3) instructional program analysis; and (4) curriculum program analysis. The fifth approach, that of goal and objective formulation, is presented to show that alignment questions must be addressed from the very beginning. The paper concludes by advising that the entire curriculum and instructional program of a school or district cannot be subjected to an alignment effort simultaneously. Provided there is an overall scheme, the program can be examined and adjusted in sections. (MLF)

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Topic Summary Report

CURRICULUM ALIGNMENT

Research on School Effectiveness Project

Prepared for:

Alaska Department of Education
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Audit and Evaluation Program
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PREFACE

This report is a part of a series conducted for the Alaska School Effectiveness Project. All of the others in the series are reviews of research literature on topics which were deemed to have an impact, actual or potential, on school effectiveness. All of the reports in the series thus far were generated using the same approach and a common reporting format. This report is an exception. The previous topics in the series had a substantial research literature; the present topic does not. For example, our initial ERIC search on the topic of curriculum alignment crossed with research yielded only one item which appeared to be of sufficient interest to follow up. Nevertheless, this topic of curriculum alignment is important. It is a new topic--but it sounds like an old, commonsense, idea--especially to someone from outside the educational profession. Indeed, it is so simple that it is apt to be overlooked at a time when the popular topics of professional education discussions, such as use of computer-assisted instruction or left-right brain theory, are increasingly complex and sophisticated. While the idea of curriculum alignment is simple, its implementation as an educational practice is not easy--yet, its potential of improving the quality and effectiveness of education demands that we address the topic. Therefore, the body of this paper will describe the concept of curriculum alignment and discuss some of its implications for effective schooling.

The other papers in this series have addressed the topics of computer-assisted instruction, class size, the principal as instructional leader, ability grouping, group size, time factors in education, parent participation in instructional programs, direct instruction, and mastery learning--all for the Alaska Department of Education. Similar papers have also been prepared on Native American education and on discipline and motivation, for other clients. For a description of the analysis process see William G. Savard, Procedures for Research on School Effectiveness Project, Northwest Regional Educational Laboratory, Audit and Evaluation Program, December 10, 1980.

Topic: Curriculum Alignment
Authors: William G. Savard and Kathleen Cotton
Date: August 1982

Introduction

Curriculum alignment is a term used to denote the conscious alignment of three educational elements: curriculum, instruction, and assessment. In other words, we determine precisely what it is we intend to teach, we teach that specifically, and we test or measure specifically that which was taught. Good teachers and good schools have been doing this for years.

It was, of course, easier to keep everything in alignment when the curriculum was dominated by the textbook, and textbook publication tended to be dominated by a few large publishing houses. At the same time, testing tended to be dominated by a few major test publishers, some of whom were directly connected to the book publishers. As a result, a kind of informal, serendipitous state of alignment was often attained--and attained often enough that people did not find it necessary to complain about its absence. This is not to say that there were no alignment problems. Indeed, at the level of higher education, where students are more apt to register complaints, individual anecdotes about misalignment are easy to find. Every former student can tell about a "favorite" professor whose lectures did not follow the course syllabus and whose final exam had nothing to do with either. To some degree, this sort of misalignment has been present at other educational levels as well.

The kind of informal alignment achieved by a textbook-dominated curriculum was satisfactory to the extent that the textbook was satisfactory. During the 1960s and 1970s, however, more and more educational professionals began to feel not only that currently used textbooks were unsatisfactory but that the

whole idea of textbooks was not adequate. These educators felt that a great variety of sources needed to be made available to a student--not just a single textbook. At about the same time the new curriculum development movement began to result in a proliferation of new types of curriculum and instructional programs. Simultaneously, we added whole new groups of student types to our responsibilities. And there was a great proliferation of test publishers and available tests at this same time. Moreover, everyone was encouraged to be individualistic and creative. No wonder that problems of misalignment started to appear and to be recognized.

Curriculum Alignment and Effective Schools

The effects of having a carefully aligned curriculum, instruction, and testing system have not been thoroughly researched. The notion of a conscious alignment is still too new for this to have happened. There is a major project underway in Los Angeles, through the collaboration of SWRL Educational Research and Development and the Los Angeles Unified School District, but it is not yet at the stage where overall impact data are available.

It could easily be argued that it is unnecessary to research the impact of alignment. The desirability of having the objectives, the instruction, and the testing fit with each other seems apparent. Indeed, no one seems to be arguing for conscious misalignment. There are those, however, who view conscious alignment efforts as being restrictive and destructive of spontaneity. The extent to which contention exists should probably determine the need for research on the impact of having a carefully aligned curriculum.

Meanwhile, the problem continues to exist, and at several levels. There is the plight of the individual college student whose professor didn't follow

the syllabus and whose test fit neither the syllabus nor the lectures. There is also the district superintendent who tries to explain to the press why the children performed so poorly on a test--which is reputed to be good, when the instructional program is also reputed to be good. Such problems of good, but nonmatching, curricular components are being noted more and more frequently. For example, the match between the mathematics items on one of the most popular nationally used achievement tests and one of the most popular elementary mathematics programs is approximately 60 percent. And these are only two of the critical elements in the alignment triangle; there is still the problem of whether or not the teachers are actually following the program.

Some authorities in education see alignment as being of critical practical importance. In an address delivered in February 1982 at the Alaska Effective Schooling Design Conference at the Northwest Regional Educational Laboratory, Wilbur Brookover of Michigan State University had this to say:

> In the absence of specific behavioral definitions for principals in effective schools, I should like to hypothesize that the principal's role be clearly identified as that of an instructional leader and that this role include at least three general types of behavior. First, that the principal see to it that the objectives for each grade level and for each course are clearly identified and understood by all of the staff. Second, that the principal's role include the regular monitoring and assessing of the instructional program to see that it is being carried out to master the objecties identified. And third, the principal along with others members of his staff and the central administration use appropriate tests and assessment instruments as the means of evaluating the effectiveness of the instructional program.

In other words, Dr. Brookover is suggesting that the principal's main task is to achieve alignment--consciously keeping the three elements of curriculum, instruction, and testing in alignment throughout the school.

Another speaker at the same conference, Dr. Alan Cohen of the University of San Francisco, spoke of alignment in a much more specific context: "Curriculum alignment accounts for much of the gains we see in mastery learning..."

Dr. Cohen went on to define and discuss alignment as it applies to mastery learning.

> Curriculum alignment is the degree to which the intended instructional outcome, the resources and strategies used to cause that outcome, and the test used to assess the outcome are all behaviorally congruent. In plain English, alignment (congruence) means that we test what we teach, and we teach precisely what we want the learner to learn. Such precision causes demonstrated mastery. Demonstrated mastery, in turn, helps insure that the learner sticks to the task, perserveres, participates in the prescribed learning activity. Apparently, learners like to succeed, and except in rare cases of pathology, most people tend to move toward activities at which they succeed.[1]
>
> What we teach often is difficult to define precisely. But difficulty does not excuse us from the obligation to define. If alignment is one of the two[2] key components of effective instruction, then clarity of the outcome is essential to insure that the process and assessments are congruent. Fuzzy objectives are a sure sign that mastery learning is not in place.
>
> Direct instruction is (another) one of those current "in" terms. Some people use it to describe a teacher-delivered lesson, operationally defined as the teacher talking "directly" to his or her students. Actually, the term means alignment, (or) congruence. A mastery learning instructional sequence is competency-based. The student and teacher know exactly what outcome they seek; the materials, activities, and teaching resources are behaviorally congruent with the post-instructional assessment. The instructor defines A, causes the student to perform A, and measures A.

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[1]See also Kathleen Cotton and William G. Savard, Mastery Learning, Northwest Regional Educational Laboratory, Audit and Evaluation Program, June 1982, NWREL.

[2]The other is P ratio (perserverance) or time-on-task.

Professor Cohen speaks of alignment as a key factor in the highly effective mastery learning approach. He also uses the term "direct instruction" as a synonym for alignment. One could easily argue with this usage, but the similarity of elements cannot be denied. The point is that two well-known and demonstrably effective approaches to teaching, direct instruction and mastery learning, are based in large part upon the idea of alignment of objectives, instruction, and testing.

The translation of the basic idea of alignment into actual school practice is not necessarily easy. Good instructional planning is required. George Behr, of the SWRL/Los Angeles Curriculum Alignment Project, pointed out some of the key principles at the aforementioned design conference. Some of his main points follow:

> Good instructional planning is dependent upon having good instructional information. Instructional information includes: (a) a clear description of the instruction program or content; and (b) the skills the students have acquired or are in the process of acquiring. Capturing good-quality instructional information demands special attention toward recording a district's or school's instructional interests and accomplishments. However, good information is a necessary but not sufficient condition for success. Instructional planning has to be put into operational terms at both district and state levels.
>
> At the district level this means putting instructional interests in clear operational terms. General board policies and priority statements indicating clearly what the district intends with its instructional program are essential. There must be assurances that the resoures (i.e., programs) are actually available. Having the two basic pieces of information as to what the intents are and what programs exist to accomplish those intents, it is then possible to fine tune the alignment of those two elements. It may be necessary to refine intents or strengthen programs. Or even to develop alternative programs. It will frequently be necessary to provide additional training for principals and others in the implementation of the programs. The careful development and coordination of a district-wide testing program is the third element. Coordination between schools is important, but not as important as between the testing and instructional programs.

At the school level it is important to identify student strengths and weaknesses immediately and then to organize resources--materials, time, teachers, aides, etc., to build on identified student strengths and needs as they relate to the instructional intents of the school. School-wide instructional and testing programs are highly desirable--if not school wide, at least cross grade, cross department, or at least beyond a single classroom. Once again, as at the district level, coordination is of critical importance, most importantly between the instruction, the testing and the school's documented objectives.

How Can Alignment Be Accomplished?

Assuming that alignment is a desirable condition, as is argued by Brookover, Cohen, and Behr, how can it be accomplished in a typical school system? The nice, neat paradigm of identification of objectives, followed by development of instructional programs and selection or development of tests. is, of course, unrealistic for implementation in most situations. We do not start with a blank slate. Schooling is in process, instruction is taking place, objectives may or may not be documented--but teachers do have objectives, shared or private. Testing programs may be in place, required by the county, the state, or local tradition. Each of these elements may have had a perfectly reasonable origin, but still not be in alignment. Seldom is it possible to start from scratch. Usually, we must take one or more elements as given. This argues for an opportunistic approach--change what can be changed, when it can be changed, by whatever means feasible--but with the important proviso that there be an overall plan or vision to guide the separate changes into a rational pattern. Movement, however piecemeal it may appear to be, should always be in the direction of better alignment.

For example, suppose that a school were required by some authority (the district or state) or by strong local tradition to use and report on a certain mathematics test. The school has the obligation to determine the extent to which it is actually teaching the skills and understandings called for in the

test. Suppose, further, that substantial differences were found to exist. Action should be taken to change what is being taught so that it better matches the test. Or the information about the differences could be used to argue for a change in the testing requirement. An argument for a change in the testing requirement would probably be a lot stronger if the first element of the triangle--objectives--was accounted for, i.e., documented and shown to be clearly in alignment with teaching practice. If our teaching practice is not demonstratably congruent with our objectives, or if those objectives are not documented then it becomes quite difficult to argue that any required test is not appropriate.

Another type of situation might obtain. Suppose that the objectives had to be taken as given, because they were documented and were required by the district board or some strong local tradition. Actual teaching practice should then be analyzed and its match to the objectives determined. Discrepencies should be resolved by changing teaching practice. If one elected to quarrel with the official or traditionally accepted objectives, it would be well to have actual teaching practices documented, so that their reasonableness could be demonstrated as a basis for proposed changes in the objectives.

The point is that it is not necessary--and is frequently impossible--to change all three elements of the alignment triangle (objectives, instruction, and testing) at the same time. One works where one can. If there are given elements, we must live with them, at least temporarily, and work on the other elements--all the while improving the documentation of each of the three elements in case a challenge to the given elements seems appropriate.

The following are a few practical approaches to improving alignment.

1. Implications Analysis of Objectives

This technique calls for spelling out, in behavioral terms, the implications of the goals and objectives. If we really mean what we say in the goals or objectives, what must we actually do, and what are the likely consequences? Contradictions and gaps in objectives will become apparent. Is what is implied in the goals and objectives what we really want to do? If so, we should be willing to make the implicit explicit. If not, we probably do not have a clear understanding of agreement on what we want to do.

2. Content Analysis of Tests

This technique starts at another corner of the triangle, the test. A test can be analyzed item-by-item by asking the question: what does a child have to know or be able to do in order to respond correctly to this item? More is involved than just the "correct" answer. For example, with a multiple choice item it means understanding each of the distractor items as well as the correct response. With a short essay response it may mean knowledge of format, punctuation, syntax, and other matters, as well as the content being written about. Once the required knowledge or skill is identified, two more questions naturally follow: first, where and when in our present school program will a child learn this; and second, is this really one of our objectives as explicitly stated in an official document?

3. Instructional Program Analysis

This third approach begins with the actualities of the instructional program. Timed sample observations are made in actual classrooms. The basic question is: what is actually being taught in this sample time period? Once this is determined, other questions follow: first, where in our official goals and objectives is the statement which provides a basis for teaching this particilar fact, skill, understanding, attitude, or whatever was being taught? Second, how will we know it is being learned; where is the test item, quiz, performance test, etc., which will give us assurance that the children are actually learning what we are teaching?

4. Curriculum Program Analysis

This is essentially the same as Instructional Program Analysis, but instead of analyzing actual samples of classroom activities, the analysis is of the curriculum or formal instructional plan. The same questions are asked. This technique is particularly useful when contemplating the adoption of a new curriculum or instructional program. Many of the published packaged curricular programs do an excellent job of aligning the three elements of objectives, instructional activities, and the method of assessment. It is precisely this alignment that makes them effective. A purchased, packaged curriculum may be internally consistent and aligned, but it should also be checked against district or school statements of goals and objectives and tests. Adjustments may have to be made. In some cases, other school or district level tests may be made redundant (or even contradicted) by the built-in evaluation scheme in a packaged curriculum.

5. Goal and Objective Formulation

Although their numbers are rapidly decreasing, some schools and districts do not have written goals and objectives. If this is the case, one might start from scratch, so to speak. Projects to write goals and objectives have been quite popular during the past several years. However, in some cases the activities never proceeded beyond writing the goals and objectives. For any impact to occur it is necessary to take the additional steps suggested in one or more of the four approaches listed above. Goals and objectives need to be subjected to implications analysis, even when freshly written. Goals and objectives need to be transformed into educational activities which will actually take place in the classroom, plans must be made and documented, and implementation must be actually observed. Testing questions must be settled and plans actuated. In short, the alignment questions must be addressed from the very beginning, and they must be kept before all those concerned--the school board, and administration, the teaching staff, support personnel, parents, and the students themselves.

Summary

This paper contends that the alignment of the three elements of (1) objectives, (2) actual teaching, and (3) the means and content of testing are essential to effective schooling. Research on this topic was sought but not found in significant amounts. The logical arguments of three authorities, Drs. Brookover, Cohen, and Behr, were presented in support of the idea of alignment. Five techniques for approaching the alignment problem were suggested. The first four of these suggested techniques recognize the complexities of the school context and the probable necessity of dealing with some of the elements of alignment as givens. The approaches suggested are in recognition of the fact that situations will vary greatly from school to school, but that it is usually possible to devise a method--a wedge--which can be used to enter and modify an existing system. The fifth approach, that of starting from "scratch" with the writing of goals and objectives was presented as a reminder that even a tabula rasa situation will not automatically lead to alignment. The elements of objectives, instruction, and testing must be constantly addressed and adjusted--fine tuned, as it were. Finally, it is necessary to be aware that the entire curriculum and instructional program of a school or district need not, indeed cannot, be subjected to an alignment effort simultaneously. The program can be examined and adjusted in parts and pieces provided there is an overall scheme to keep the parts in order and in perspective.