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AUTHOR Savard, William G.; Cotton, Kathleen
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ABSTRACT

The paper summarizes some educational research findings regarding effective schooling practices. Only those findings which have particular impact on educational program planners in the field of migrant education are discussed. These findings pertain to the following issues: class size, group size, ability grouping, parent participation in instructional programs, the principal as instructional leader, computer-assisted instruction, student discipline and motivation, direct instruction, mastery learning, and time factors in learning. The paper summarizes what the research says about smaller classes and the achievement of disadvantaged, low-ability, and primary age students; instructional grouping and the achievement of young children; homogeneous/heterogeneous grouping practices and the achievement of high, middle, and low ability groups; parent involvement in their children's education and the children's achievement; the principal's role as an instructional leader; the use of computer-assisted instruction in migrant education programs; practices regarding student discipline and motivation; instructional strategies which work best with disadvantaged and non-disadvantaged students; direct instruction for teaching and remediation as a set of teaching behaviors and as opposed to indirect instruction or to no instruction; the variations of mastery learning; and instructional time (allocated time, engaged time or time-on-task, and academic lerrning time) and student achievement. (NQA)

What Effective Schooling Research Says to Migrant Education Program Planners

William G. Savard
and
Kathleen Cotton

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Assessment and Evaluation Program
Northwest Regional Educational Laboratory
300 S.W. Sixth Avenue
Portland, Oregon 97204

Introduction:

The presentation I am making today, in 1983, probably could not have been made ten years ago, in 1973.

During the late 60's and the early 70's, when compensatory education programs were going through their first cycle of enthusiastic optimism and subsequent disappointment, we, as a profession, did not know enough to make the kinds of statements I am going to make today. Some of the research reports of that period gave us the impression that there was little that we could do for educationally disadvantaged children--their social and economic backgrounds were the overpowering determinants of school success. Many in the educational profession felt a sense of despair--despair born of, on the one hand, of being told that we couldn't make an overall difference, and on the other hand not knowing for certain what kinds of particular things we could do which would make specific differences for children. But we persisted in our efforts anyway, and it's a good thing that we did.

Now, ten years later, we are, as a profession, in a position to say with a great deal of certainty a number of things about what kinds of educational practices work with the kinds of children we deal with. The decade of the 70's was a great period of high quality important educational research. This work is continuing into the 80's. As a result we are in a better position than ever before to design educational programs that will really work.

Before proceeding with the substance of my presentation, allow me to mention the means by which I came by the content of this talk. During the past few years the Alaska State Department of Education has been making a concerted effort at school improvement. One of the key features of this effort was a conscious decision to base planning on research-based

information. This of course, made it important to gather and summarize what educational research has to say about what are effective schooling practices. I was fortunate enough to be selected to participate in that effort. The Alaska Department of Education has generously allowed others to make use of the information gathered in those research summaries and I would like to publicly thank them for what I am offering here today. There have been other sponsors, for example, the Pacific Northwest Indian Reading and Language Development Program and I would like to thank them also. I would also like to publically thank my colleague at the Northwest Regional Educational Laboratory, Kathleen Cotton, who did much of the research referred to.

I will not attempt to present, or even summarize, all of the hundreds of research studies that were analyzed and summarized. Rather, I will share with you, as a colleague in the field of migrant education, those findings which have particular impact for us as educational program planners in this special field. Neither will I attempt to present the academic citations for these studies. All of that is in writing and I have a set of the papers here if you wish to examine them. Also, if you are interested in a particular research summary, you may request it from the Northwest Regional Educational Laboratory. There is a bibliography at the end of this paper. Some are also available through the ERIC system.

Let me briefly mention how the research topic reviews are conducted. The process begins with a topical literature review using both computer-based ERIC and conventional library methods. Articles and other documents found are analyzed and abstracted into a brief form called an Item Report. Both primary and secondary sources are included. Each of the items is then judged against a set of pre-established criteria and ranked on a five-point scale. The collection of item reports are then examined for purposes of identifying

issues. These issues are stated in the form of hypotheses. Each hypothesis thus generated becomes the subject of a Decision Display. A decision diplay is created by sorting the item reports into those which support or negate the hypothesis, are inconclusive, are badly flawed, or are irrelevant. One or more decision displays are created for each topic addressed. A Summary Report is then generated from the consideration of the decision displays and the file of item reports. Thus, each complete report in the series consists of a summary report which is backed up by one or more decision displays which in turn are supported by a file of item reports. The format was designed to accommodate those readers who wished to delve into various depths of detail. Today we will stay at the summary report level.*

This presentation will be organized around 10 topics. They are as follows: (Show overhead slide)

1. Class Size
2. Group Size
3. Ability Grouping
4. Parent Participation in Instructional Programs
5. The Principal as Instructional Leader
6. Computer-Assisted Instruction
7. Student Discipline and Motivation
8. Direct Instruction
9. Mastery Learning
10. Time Factors in Learning

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*For a more complete description of the analysis process see William G. Savard, Procedures for Research on School Effectiveness Project, Northwest Regional Educational Laboratory, December 10, 1980.

Each of these is a topic worth several hours of discussion. Today, however, there is only time to touch on those aspects that apply directly to the design of educational programs for migrant children.

There will be some holes and gaps in what I have to say. This is because there are certain holes and gaps in the research. This will always be the case but the situation is improving over time, the holes are being filled in and the gaps are being narrowed. However, what I will say today is based on research and it is a much more solid base than we had 10 years ago.

1. Class Size (Show overhead slide)

Class size has been studied for many years. Most everyone seems to prefer smaller classes but they are more expensive. Given the additional expense the question becomes, Is it worth it in terms of better educational outcomes? The answer is, not necessarily so, except in certain kinds of situations with certain kinds of students. And this is where the relationship to migrant education occurs. There are indications that the achievement of disadvantaged, low-ability, and primary age students is enhanced by smaller classes. Very small classes, those with five or fewer students, appear to produce considerably higher achievement than average size classes, although the evidence for this has emerged chiefly from studies of short-term instructional situations. Other factors, such as the instructional methods used in a class of a given size, are as important or more important than class size per se. Students, especially academically needy and younger students, can benefit from smaller classes if the instructional approach is designed to take advantage of the smaller class size. In migrant education we have long argued for smaller classes. Indeed, much of our program money is spent for providing smaller classes. These smaller classes are

justifiable even though they are more expensive--provided we adopt instructional methods suitable for the smaller sized groups.

2. Group Size (Show overhead slide)

In addition to the sizeable body of research which has been conducted on class size, many researchers have investigated grouping arrangements within classrooms to determine whether there is an optimum group size for teaching and learning. Such research is concerned with the relative effectiveness of whole class, small group, and individualized instruction with students of various age/grade levels. These are frequently issues in the design of migrant education programs, particularly so because of the costs involved.

Two major trends were noted among the studies reviewed. One has to do with the effects of instructional grouping on the achievement of young children and led to the hypothesis that small group instruction has a positive effect on the academic achievement in the primary grades. There was considerable research evidence to support this hypothesis. However, the researchers and reviewers of research studies were quick to point out that there is nothing magical about the benefits conferred on young children's achievement as a result of small group instruction per se. Rather, they focused on the conditions observed in small group settings which were found to foster achievement gains. These included: highly structured and systematic instructional patterns, more teacher interaction and immediate feedback/reinforcement, and greater amounts of student time-on-task. (We shall have more to say on these matters when we consider the topics which follow.) It was also noted in an investigation of the effects of independent study that this approach

requires a degree of maturity and responsibility which is often beyond the developmental level of primary students. Further, in one review it was observed that unsupervised small group work is negatively correlated with achievement, lending further support to the notion that young children (and probably older children with low level skills) require interaction and guidance for successful learning.

A second hypothesis suggested by the studies reviewed is that, beyond the primary grades, students achieve equally well and have comparable attitudes and self-concepts whether they receive instruction individually, in small groups, or in whole class settings. Although the findings of some researchers favored one grouping arrangement or another and some were inconclusive, the majority found no significant academic or affective differences among students in the various formats. If you are planning individualized or small group instruction for older children in migrant education programs, you should be prepared to justify the time and expense on some basis other than expected cognitive achievement or affect.

3. Ability Grouping (Show overhead slide)

Another, and frequently controversial, aspect of grouping has to do with ability grouping or as it is sometimes referred to, the homogeneous/heterogeneous grouping issue. It is of concern to migrant education primarily because we must operate our programs within schools which may have adopted either a homongeneous or heterogeneous grouping policy for the entire school. This is generally more of an issue in larger schools and increases in level of concern as we go up the scale of grades. It is important that we understand the issues and the effects.

First of all it should be noted that ability grouping is widely practiced and accepted by school people, particularly at the secondary level. Second, it should also be noted that there are many studies that purport to show that there are no differences in achievement or affective measures whether homongeneous or heterogeneous practices are used. However, these studies are misleading in that they deal with the aggregate or average performance of all the students. The issues really have to do with the performance of high, middle, and low ability groups. The critical findings are as follows:

(a) Homogeneous grouping has a positive effect on the achievement, school attitudes and self-concepts of high ability students.

(b) Homogeneous ability grouping has a negative effect on the achievement, school attitudes and self-concepts of low-ability students; conversely, heterogeneous grouping of these students has a positive effect on these outcomes.

These findings present us with somewhat of a dilemma. If we find a particularly bright migrant student, we should try to get him or her placed in a high ability homogeneous group. On the other hand, if most of our students are of lower ability we should press for a heterogeneous grouping policy.

4. Parent Participation in Instructional Programs (Show overhead slide)

The participation of parents in the education of their children is a subject which has received considerable attention in recent years. Research conducted in the 1960's indicated that various home factors such as parents' socioeconomic status, educational level, and attitudes toward education, had more influence on children's school performance than all school-controllable factors combined. At the same time, society began to respond to reports of declining test scores and increased school discipline problems by calling for greater accountability on the part of the schools. Educators were told, in effect, that they must do more and that their capacity to do more was severely limited by factors beyond the school's control.

In response to these strong and seemingly contradictory messages, the educational community, with considerable federal support, began to develop programs which would enhance--and, in many cases, compensate for--the effects of home influences on the school performance of children. Many of these programs had parent involvement components. Migrant education is a notable example. There were several reasons for seeking parents' participation in the education of their children: providing additional instructional time for the children in cases where parents tutored them in the home, increasing parents' valuation of schooling, and improving their skills in supporting their children's learning, and finally, reducing home-school tensions. Migrant education embraced all of these purposes.

In recent years, various research projects have been undertaken to determine whether parents' involvement in their children's education does in fact bring about positive results. Most of these

studies focused on parent participation in the education of preschool and elementary age children.

Overall, the studies found that parent participation has a positive effect on childrens' achievement, the more extensive the participation, the more positive the results. These findings emerged from studies of both preschool and elementary children; and with a variety of academic measures, in rural and urban settings; and with disadvantaged, special education, and regular students. Several studies cited positive outcomes other than achievement gains, including improved self-concept of parents and children, improved school-community relations and better student work habits. The kinds of parent participation which have the most positive effects on achievement at the preschool level are regular home instruction and parents working with teachers and children in classroom settings. Findings are inconclusive as to whether person-to-person training and supervision of parents as they work with their children at home is more positive than simply providing parents with an orientation and appropriate materials.

At the elementary level similar findings emerged. Parent involvement in any degree was positively related to achievement. The more the better. Further, home tutoring on a regular basis was found to be the most effective form of parent participation.

As everyone engaged in migrant education knows, getting parents involved is a difficult task. This is especially true of active migrants. But the research evidence clearly shows that the effort is worthwhile, especially if that effort is directed at getting the parents directly involved in the instruction of their children.

5. The Principal as Instructional Leader (Show overhead slide)

While much has been written about the role of the principal as instructional leader there is only a small amount of research which relates the principal's role as instructional leader to outcomes such as student achievement. However, the research that has been done is quite clear. We examined seven studies which fell in this category. All seven st dies found the principal's instructional leadership to be either a major factor or the major factor in the achievement levels and gains in the schools studied. The particular instructional leadership behaviors cited as promoting student achievement included: (1) frequent observation and/or participation in classroom instruction; (2) communicating clearly to staff what is expected of them as facilitators of the instructional program; (3) making decisions about the instructional program; (4) coordinating the instructional program; (5) being actively involved in planning and evaluating the instructional program; and (6) having and communicating high standards and expectations for the instructional program. These behaviors were found to have a positive effect on reading and mathematics achievement.

Many of the schools studied had principals who were effective managers of buildings, budgets, and so on, but were not actively involved in the instructional program. Interestingly, there were no examples of the reverse. In every case where effective instructional leadership on the part of principals was noted, that individual was also effective as a financial manager, facilities manager and so on.

But what does this have to do with migrant education? Few, if any migrant educators are school principals. (Except in the case of summer programs.) Besides hoping that our programs will be placed in

schools with good principals what can we do? We can assume that all migrant education administrators have some principal-like functions. We can assume that in order to carry out these functions the main focus, and main effort must be on the instructional aspects of the program. When selecting administrators for the migrant education program we need to give priority to instructional qualifications.

What we should not do is declare that every administrator of migrant education is an instructional leader. Some are not and never will be, but they are still good and efficient administrators. They cannot be made into instructional leaders by royal (or any other kind of) decree. Nevertheless, the instructional leadership function in migrant education programs must be provided for in some way. Some qualified person must be designated in every project to take the instructional reins. This designation must be conscious and clear so that everyone involved will know where the instructional leadership is coming from.

6. Computer-Assisted Instruction (Show overhead slide)

I will not say much about computer-assisted instruction. It does work and it is being used in migrant education programs. The research findings make it clear that computer-assisted instruction is a good supplement to traditional instruction. The evidence is not strong enough to support teaching by computer-assisted instruction exclusively; a combination approach seems to work best.. Computer-assisted instruction is also popular with students and often improves their attitude toward the subject matter. The computer-assisted instructional approach usually results in the students learning more material in a given time period, or the same amount of material in less time. Fears that students would forget computer-

assisted learned materials appear to be unfounded, although findings in this area are mixed or inconclusive.

It is recommended that the use of computer-assisted instruction for migrant education be actively promoted and expanded. This would be especially important for small schools in rural areas where is it difficult to offer full schedules of classes to limited numbers of students. It is also recommended that computer-assisted instruction be increased with low-achieving students and with students who tend to be alienated by traditional teaching methods.

It is recognized that the development of computer-assisted instructional programs and plans may be beyond the capabilities of local migrant education projects. It is therefore recommended that state and federal offices take a leadership role in such development efforts, providing both financial support and technical expertise.

7. Student Discipline and Motivation (Show slide)

One of the goals, sometimes stated, sometimes implied, of migrant education programs, particularly those at the secondary level, is improvement of student discipline and motivation. This is because lack of discipline and motivation are often serious obstacles to academic achievement. Interestingly, what works in discipline and motivation is very similar to what works in academic pursuits.

Findings emerging from the research base on discipline and student motivation lead to several conclusions about practices which are effective and those which are not. In order to prevent or reduce the likelihood of student disruptions and indifference to learning, classroom management techniques featuring a high degree of structure, frequent interaction between student and teacher, frequent feedback and reinforcement, and the establishment and maintenance of clear behavioral standards are very effective.

When school or classroom disruptions do occur and/or when students exhibit apathy toward the learning process and learning environment, some remediation approaches have been found to be more effective than others. Offering tangible rewards can be effective in inducing students to change their behavior, but these changes are generally superficial. Such "improvements" tend to disappear when the reward system disappears or becomes stale. Withdrawal of, or satisfaction with the reward system, can even cause students to regress to a less desirable behavioral or motivational state than before the reward system was initiated.

Social reinforcers such as approval from school personnel, support and encouragement from other students, and school formalities in which student effort and achievement are given public recognition are effective in producing lasting behavioral improvements. Internal changes in self-concept and self-confidence appear to be facilitated by these intangible rewards, and, as such, they follow the student into new settings and new tasks.

Some students do not know what it feels like to succeed in getting along with others, completing academic work or making a contribution to a group. Practices which involve teaching students what counts as appropriate behavior and why, and approaches which enable students to experience and be validated by success in social and academic activities are effective in enhancing subsequent motivation to learn and to behave appropriately. This has particular relevance to our many migrant education guidance and counseling projects.

Punishment per se is ineffective and often detrimental, especially if it is administered unequally or is incongruent with the offense that inspired it. Punishment can be effective in demonstrating the relationship between actions and outcomes and in inducing behavioral changes, provided it is accompanied by support, assistance, and the opportunity to demonstrate changes in the future. Corporal punishment is ineffective, potentially detrimental, often illegal, and ethically offensive to a great many educators and laypersons.

8. Direct Instruction (Show overhead slide)

During the past two decades there has been a proliferation of new educational programs. Many of these programs were developed and implemented to help overcome the learning deficits that often accompany growing up in socioeconomically disadvantaged settings. Many of these programs have been researched and evaluated to determine their efficacy in promoting basic skill achievement and other desirable educational attainments.

Another thread of recent research has involved studying the classroom behaviors of those teachers whose students achieve more than would be predicted based on pretest scores, socioeconomic status, and so forth. The focus of this research has been to determine what these teachers do that is special; what they do that enables their students to learn more than their counterparts in other classrooms.

These two kinds of inquiries have led to well-documented findings about what kinds of instructional strategies work best with disadvantaged and non-disadvantaged students at the preschool, primary, and upper elementary levels.

In examining different instructional programs and the kinds of teacher behaviors they require or imply, two main approaches can be identified. One of these approaches proceeds from the conviction that young children will develop basic academic skills, creativity, and self-esteem if they are allowed to learn inductively--to discover rules, facts, and underlying principles from guided exposure to, and experience with language, numbers, games and so on. Programs posited on this notion contain activities which are designed to enable children to learn by inference via numerous guided contacts with program content. Often called "discovery learning," this approach has led to the development of programs which describe themselves as being "focused on building the child's responsibility for learning," as featuring "child-directed choices" and creating situations in which "children are encouraged to select and schedule their own activities."

The other major approach to educating young children proceeds from the notion that basic skills should be taught directly via structured, teacher-initiated activities which involve considerable drill and practice and a high level of teacher-student interaction. Program content is tied directly to skill development in reading, language arts, and mathematics; and student-selected activities play only a small part in the learning program. Generally referred to as "direct instruction," this approach is utilized in many instructional programs for older remedial students as well as characterizing many programs for primary children.

It is necessary to be aware that the term "direct instruction" is used in three different ways in the research literature. Each of these differs from the "discovery learning" approach, and might be

viewed as representing three degrees of rigor in applying the direct instruction priciples outlined above. They are as follows:

a. Direct Instruction System for Teaching and Remediation (DISTAR)

The most rigorous application of direct instruction may be found in the DISTAR programs. Intended primarily for use with disadvantaged children, these programs provide reading, language, and arithmetic instruction via a model which features rapid, teacher-directed small group instruction, positive reinforcement and immediate corrective feedback, and an extensive teacher training and student progress monitoring system. The DISTAR model involves the use of explicitly detailed lessons (scripts), a signal system for cueing students to respond, and the provision of reinforcers to stimulate motivation.

b. Direct Instruction As a Set of Teaching Behaviors

Many researchers use the term direct instruction to refer to a set of teaching behaviors which have frequently been observed together in the classroom operations of highly successful teachers. Described in detail several years ago, direct instruction here refers to a teaching style in which a great deal of time is spent on academic activities. Seatwork involves structured materials. Teacher and workbook questions are narrow and direct, usually with a single direct answer. Teachers provide immediate feedback using praise and acknowledgement of student answers. Students work in groups supervised by the teacher, with little free time or unsupervised activity. Direct instruction is also characterized by an animated and supportive approach on the part of the teacher. It can readily be seen

that this approach differs radically from the "discovery" method. It is also less formal than the DISTAR approach, in that teacher presentations are not necessarily scripted, transitions are not necessarily effected by means of a signal system, and so on.

c. Direct Instruction As Opposed to Indirect Instruction or to no Instruction. Finally, the literature on direct instruction includes studies and reviews in which that term is used to mean teaching something deliberately--addressing it "straight on" as it were--as opposed to presenting it indirectly or not at all. Researchers have, for example, asked whether specific vocabulary instruction is preferable to learning vocabulary words inferentially through encountering them repeatedly in the context of stories read. Researchers and reviewers who use the term direct instruction in this way are not referring to any particular set of teaching behaviors. Rather, they apply this term to virtually any teaching approach that involves putting the things to be learned directly before the student, and addressing these things straightforwardly, in contrast to a guided discovery method or to not presenting the material at all. As such, this may be viewed as the least rigorous form of direct instruction.

Analysis of the findings concerning the various forms of direct instruction lead to several conclusions. They are organized according to the three different ways the term is used in the research literature.

a. DISTAR programs in reading, language and arithmetic are effective in building basic skills among socioeconomically disadvantaged, primary age children. (Many migrant children fall into this category.) While the developers of these programs do not assume all such children have poor language, mathematics and reading skills, they do recognize that there is a higher probability that these childrens' general experience will be narrower and that they will enter school with less family-initiated teaching of academic and pre-academic skills than other children. DISTAR programs, with their focus on tightly structured lessons, small and assimilable units of information, extensive drill and emphasis on teacher-student interaction have been shown to be highly effective in compensating for the deficits commonly experienced by disadvantaged children. Because of the interactive focus and the opportunity to demonstrate skill mastery, the programs also enhance the childrens' self-esteem and their attitudes toward school. While they do have some degree of staying power, as determined by the later school performance of students instructed with them, these programs do not have the power, simply by their application in the primary grades, to prevent these students from falling behind their socioeconomically more fortunate counterparts over time. It may be that no short-term educational program could produce such a long-term compensatory effect. DISTAR programs have also been very effective for instructing low ability children in the upper elementary grades.

b. Direct instruction, as that term is used to denote the agreed-upon set of teaching strategies and behaivors indicated in the second meaning, is very effective for promoting basic skill development among students generally. This is particularly important since most migrant education programs are concerned with basic skills. When teachers set and articulate learning objectives, offer highly structured lessons, ask questions which are specific and narrow in scope, provide corrective feedback and communicate affection and support to students, achievement results are superior to those obtained with other, less direct methods. All kinds of primary and upper elementary level students appear to achieve more in basic skill areas with this instructional approach, and students with learning problems resulting from language barriers or limited background experiences seem to benefit most of all. This second level of meaning of direct instruction has wide application and importance for migrant education programs. Indeed, it would be hard to justify any program with a less direct approach.

c. Direct instruction, using the third definition where the term is used to denote addressing learning material straightforwardly, is more effective in promoting student achievement than are educational practices in which the things to be learned are addressed indirectly or not at all. Students in general appear to require direct teaching in order to master basic skills with maximum efficiency, thoroughness and permanence; and some students can only learn via a direct method.

In summary, it can be said that direct instruction, in one form or another, ought to be a key teaching strategy in most migrant education programs.

9. Mastery Learning (Show overhead slide)

Mastery learning is an educational approach which has certain clear-cut features. Although there are variations on the mastery learning strategy, several basic components can be identified in most mastery programs. At the outset of instruction the teacher informs the students that they will be expected to achieve at a certain level--often 70 to 80 percent correct answers on criterion-referenced tests. Students are informed their interim achievement will be measured using formative tests, and that extra time, learning activities, and retesting opportunities will be provided for students not achieving at the required level on their initial attempts. Instruction is initiated (using a direct instruction approach such as described in the previous section), and the testing--remediation--retesting process is repeated until all or nearly all students have reached the criterion level for that unit of instruction. The process then commences for the next learning unit. Summative testing follows the completion of the series of learning units, and delayed achievement tests are frequently given to determine how well students have retained what they have learned.

Within this general structure, there are several variations on the mastery learning strategy. Instruction may be individually based or group based. That is, students in some mastery learning settings move ahead at their own rates. In other settings, rapid learners pursue enrichment activities or serve as tutors until most or all of the class has achieved the criterion, whereupon the entire group begins a new learning activity together. In some mastery learning settings, the remediation activities are specific to the errors made by the students on the formative tests. In other versions, failure

to reach the criterion is followed by a repeated presentation of the original instruction or by a general review of the material. Within some mastery learning approaches, students have virtually unlimited opportunity to repeat the study-test-remediation-retest cycle, in others there are limits.

Thus, it can be seen that there are many variations to mastery learning but the study-test-remediation-retest cycle is a common feature. In addition, in all cases the curriculum is carefully specified, objectives are clear, teaching methods are clearly specified and direct. Students know where they are at all times.

Mastery learning programs are generally planned for a whole semester or a year and this might be perceived as a problem in applying the technique to some active migrant students. However, there are many for whom it would clearly fit, particularly at the secondary level and in the individualized settings often found in alternative learning centers.

How well does mastery learning work? As one reviewer summarized, "mastery methods not only work, but work very well." By providing "checkpoints" through the use of formative tests, and then providing additional time and practice for students who need it, mastery learning enables the majority of students to get a firm grasp on each skill, concept, or set of items before moving on to the next sequence of activities. In this way, far fewer students are left in the dust and forced to try to tackle new learning material without the necessary prerequisites.

The mastery learning approach is not particularly well adapted to teaching higher level conceptual or decision making skills, or for the teaching of aesthetic interests or appreciation, but it is

extremely well suited to teaching much of what is often the content of migrant education programs, such as basic skills in language and mathematics.

10. Time Factors in Learning (Show overhead slide)

Research on instructional time has sought answers to a number of questions: What is the relationship between the time allocated for the study of a given subject and achievement in that subject? Does increased time-on-task actually produce achievement gains? Is there a more meaningful measure of productive instructional time than the time-on-task concept?

These questions are important to education generally and to migrant education in particular. Time factors have been frequently overlooked when planning migrant education programs.

The sizeable body of research on the relationship between instructional time and student achievement is focused on three major instructional time measures:

a. Allocated time: the amount of time scheduled for a learning activity and in which the opportunity to learn is present.

b. Engaged time or time-on-task: the amount of time spent paying attention to a learning activity and attempting to learn.

c. Academic learning time (ALT): the amount of time spent by a student in a new academic task that he or she can perform with high success.

Learning, like all things, takes place in time, and time allocations are therefore necessary for learning to take place. If high- and low-ability students alike are unable to master a given lesson or unit in a certain period of time, benefits can be expected from increasing the time allocation. Low-ability students can

benefit from various kinds of additional instructional time and practice, though some of these (such as parent tutoring, resource room participation) are more effective than others (such as extra seatwork or homework). Increasing time allocations will not automatically produce achievement gains; benefits begin to accrue when additional time allocations are accompanied by effective instruction and appropriate task content. There are particular concerns for migrant education. When designing or reviewing migrant education instructional components it is imperative that sufficient attention be given to the matter of allocated time. A conscious decision has to be made in each case as to whether or not the time allocated will be sufficient to make an educational impact. For example, it is hard to imagine how one hour a week of anything, no matter how efficient, will make much of an impact on the achievement of a migrant student. Yet we still see planned time allocations of this magnitude. In Oregon we have recently established a lower limit, of two and a half hours per week, and tied this figure to a funding formula. (Actual time allocations average between two and a half and five hours per week.) Of course, the critical matter is what happens during this two and a half to five hour time allocation. This too must be clearly specified in the educational plan so that judgments can be made about its potential efficacy.

The greater the amount of engaged time, the higher the levels of student achievement. While this point is rather obvious, establishing the importance of engagement rate (or time-on-task) serves to dissuade those who would increase allocated time alone in hopes of promoting achievement gains. Allocated time is a necessary but not sufficient condition for academic success. High engagement

rates in interactive classroom activities have a more positive effect on achievement than high engagement rates in non-interactive activities alone. There is also some evidence that engagement in interaction activities also enhances such attributes as self-confidence and attitude.

Of all measures of student learning time, the rate of academic learning time (ALT) constitutes the best predictor of achievement. Again, as was the case with allocated time, engaged time (time-on-task) is a necessary but not sufficient condition. Not only must the students be engaged in a learning task, but that learning task must be appropriate and challenging, and be presented in such a way that will spell success for the student on that particular task.

In summary, it is clear that we must allocate sufficient time to educational tasks we deem important. That time must be actually used by the student, he or she must be actually engaged in learning activities for a high percentage of that allocated time. Further, that student must be engaged in appropriate learning activities in which he or she will experience a high rate of success. For most migrant students that means bite-sized pieces of academic content presented in appropriate ways within an overall plan that recognizes that migrant students do indeed migrate. All of this requires careful planning and coordination between central offices and classrooms. The plans probably need to carefully consider the use of direct instruction and/or mastery learning strategies, as well as the other factors mentioned in the previous sections. The reason time factors was selected to be the final section is that they pull together and highlight the importance of all the other factors. If decisions regarding the other factors cannot be clearly seen as

contributing to increased academic learning time (ALT) then they are probably not the right decisions.

Finally, a word about training, Just about everything we have said about the education of students applies to the training of instructional staff. And the finest of education plans are of no value unless they are communicated to the teachers and the teachers are trained to execute those plans in authentic versions.

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Note: There are also eleven other papers in this research synthesis series but which were not directly relevant to this presentation. Citations are available upon request.