

Successful and Confident Students with Direct Instruction

By Siegfried Engelmann (NIFDI Press, 2014)

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Introduction and chapter 1-5 outlines

INTRODUCTION *Christina Cox, Jerry Silbert, and Jean Stockard*

Parents, teachers and administrators all seek one ultimate goal for kids: success. They want all students to have the highest levels of achievement and positive self-images. Yet, in spite of educators' sincere efforts, too many students do not achieve at satisfactory levels and are not enthusiastic about school or their ability to learn.

There is an answer – an answer that has been proven many times over. *All* students can be successful, *all* students can learn, and *all* students can develop self-confidence in their abilities. Teachers can help their students catch up with their peers. Administrators can promote school environments that nurture achievement, appropriate behavior, and strong commitments to learning. The answer is Direct Instruction; and this book, written by the developer of Direct Instruction, shows how educators can make these changes happen.

THE HISTORY AND PHILOSOPHY OF DIRECT INSTRUCTION

The origins of Direct Instruction (DI) lie in the genius of Siegfried Engelmann, who chose to study learning and instruction from a new vantage point. In the early 1960s, Engelmann worked in advertising where he began analyzing what type of input was required to help children remember material to which they were exposed. From his work on marketing strategies, he began to develop techniques for teaching children, starting with his own offspring.

Engelmann realized that what his children learned depended on how he instructed them. Among other things, he found that small details in his wording and the order in which material was presented determined the degree to which the children understood the concepts he was attempting to teach. He applied this growing knowledge in work with the education researcher, Carl Bereiter, at the Institute for Research on Exceptional Children in Champaign, Illinois. Together, in 1964, they formed the Bereiter-Engelmann preschool, where they began using and testing Direct Instruction techniques with disadvantaged children. While conducting this research, Engelmann developed the central tenet of Direct Instruction: *if a student fails to learn it is not the fault of the student, but rather the instruction*. Engelmann concluded that students can quickly progress and acquire new skills if instruction builds on their starting points and is explicit and systematic. As students are successful learners, they become more and more self-confident.

From these early experiments, Engelmann developed a large number of instructional programs. The programs address a wide variety of areas including reading, language, math, and spelling.

All of the programs incorporate five key philosophical principles:

1. *All children can be taught.*

The most important DI principle is that *all children can be taught*. DI assumes that if children haven't learned, the instruction is to blame – not the student. All children can learn when instruction is systematic, explicit, and efficient. Poor achievement occurs when material is presented in a confusing, illogical, or inconsistent manner.

2. All children can improve academically and develop a stronger self-image.

If students are given appropriate instruction, those who are behind grade level *can catch up*. They will also come to see themselves as smart learners. Students who are advanced academically also benefit from Direct Instruction. They can progress even further and at a faster pace when given explicit and systematic instruction, allowing them to not only achieve, but surpass grade-level expectations.

3. All teachers can succeed if provided with adequate training and materials.

Just as DI assumes that all students can learn, DI also assumes that all teachers can be effective instructors if they are given appropriate training and appropriate materials. Direct Instruction programs include specific guidelines for teachers in how to present the material in ways that are logical, clear, and systematic. By providing the most effective and efficient way to present materials, teachers are free to provide the support students need. When teachers don't have to worry about the order of their lessons or their wording of instruction, they can devote their energy to ensuring that their students are placed appropriately and receiving the instruction they need. They can also concentrate on providing consistent reinforcement to their students for their accomplishments and nurture their students' development. It takes time for teachers to learn how to teach with Direct Instruction materials, but with appropriate help and practice, all teachers can be successful and find even greater enjoyment in their professional activities.

4. Low performers and disadvantaged learners must be taught at a faster rate if they are to catch up to higher-performing peers.

If low performing and disadvantaged students are to catch up, they need to learn more in less time. The efficient design of DI programs can make this happen. Students taught with DI learn more in a shorter amount of time. In addition, the DI programs have explicit instructions for teachers and administrators on how to help their students catch up. The programs show teachers how to schedule and group students so they can learn as much as possible. Additionally, specific programs are designed to fill in learning gaps for students in the upper grades.

5. All details of instruction must be controlled to minimize students' misinterpretations and to maximize learning.

Years of research on how children learn show that even minor changes in teachers' wording can confuse students and slow their learning. If children are to learn as much as possible and as quickly as possible, all of the factors related to instruction must be controlled. The DI programs do this through their very careful attention to the way every single element of a lesson is taught. The programs provide very detailed guidelines for areas such as the order in which concepts should be presented, the wording teachers should use, and the ways teachers should check to make sure students understand the material.

DIRECT INSTRUCTION IS HIGHLY EFFECTIVE

Over the last five decades, hundreds of studies of the efficacy of Direct Instruction have been conducted. These studies have involved all aspects of the DI curriculum across core academic areas including reading, math, language and spelling. They have included students in rural, suburban, and urban settings and students from preschool to adulthood. Students with all types of demographic characteristics and ability levels have been studied, and research has occurred both in the United States and in other countries around the world. Researchers have used a wide range of approaches, from small experiments to very large studies across many schools. They have included gifted students and those with a large range of disabilities, as well as examining changes over short periods of time and over a large number of years.

This research has consistently found strong evidence that students exposed to Direct Instruction have higher achievement than those using other programs. These results occur across all the contexts and variations researchers have examined:

- Students in general education versus those in special education • Basal texts compared to “constructivist” approaches
- All age groups (preschoolers through adults)
- Different communities
- Various demographic backgrounds
- In the United States and in other countries around the globe

Research has also examined how teachers and schools can be most effective in their use of Direct Instruction programs. These studies have consistently documented how students learn more when their teachers use DI programs as they are designed. Schools and teachers that implement the programs exactly as they were written have much greater growth in student achievement and self-confidence than those that do not.

There are four main features of DI that make it so effective:

1. Students are placed in instruction at their skill level.

When students begin the program, each student is tested to find out which skills they have already mastered and which ones they need to work on. Using this information, students are grouped together with other students needing to work on the same skills. These groups are organized by the level of the program that is appropriate for students, rather than the grade level the students are in. Thus, they aren't wasting time reviewing material they already know. They also aren't trying to understand material for which they aren't prepared.

2. The programs are designed to ensure that students master the content.

Mastery learning – ensuring that students fully understand the material being taught – is a key element of DI programs. All DI programs are organized so that skills are introduced gradually. This gives children a chance to learn new skills and apply them before being required to learn another new set of skills. Only about ten percent of each lesson is new material. The remaining 90 percent of each lesson's content is review and application of skills students have already learned, but need to practice in order to fully master. Skills and concepts are first taught alone and are then integrated with other skills into more sophisticated, higher-level applications. All details of instruction are carefully managed. This attention to detail minimizes the chance that students might misinterpret the information being taught.

Because DI helps students learn quickly, students find instruction and learning reinforcing. Each day they learn something new. This new learning helps them learn additional material. Thus, their repertoire of skills rapidly expands. They are successful students, and they become increasingly confident in their own abilities.

3. Instruction is modified to accommodate each student's rate of learning.

A particularly wonderful part of DI is that students are taught at the rate at which they learn. If they need more practice with a specific skill, the programs show teachers how to provide additional instruction to ensure students master the skill and have continued success. Conversely, if students are easily acquiring the new skills and need to advance to the next level, they can be moved to a new placement. This way they can continue adding to the skills they already possess, accelerating their learning.

4. Programs are field tested and revised before publication.

DI programs are very unique in the way they are written and revised before publication. All DI programs are field tested with real students and revised before they are ever published. This testing and revision process does not occur with other programs. Only DI programs have undergone such rigorous testing and been proven to work before they are published.

THE CHAPTERS TO COME

This book shows educators how they can use Direct Instruction programs to make their classrooms and schools highly successful. In these writings, Engelmann shows educators how their students can have high rates of achievement and thus see themselves as good students and successful learners. He describes steps that schools can take to empower their staff to be the most effective educators they can be. He also describes the joys that come from being an effective teacher and seeing one's students learn and succeed.

The book is directed to two audiences:

- Teachers and administrators currently using Direct Instruction programs who want to learn more about how they should use the programs to maximize their students' success.
- Teachers and administrators not using Direct Instruction programs who want to learn about the potential for creating a more effective learning environment—one in which all their students can succeed and have positive attitudes toward learning.

The book is divided into four sections.

The first section discusses mastery learning, which is central to all Direct Instruction programs. The chapters are designed to answer the question of how to teach so that all children learn what is being taught. They explain what mastery learning is and what teaching to mastery involves. They also describe how schools should be organized to support teaching to mastery, how mastery learning can lead to positive student attitudes, and how it can help students learn how to learn, promoting even greater success in the future.

The chapters in the second section provide more specifics on how to create classroom and school environments that foster positive attitudes towards school and learning. They describe how teachers and administrators can adopt expectations and routines to increase student motivation and eliminate undesired models of behavior. They show how all members of a school can become part of an environment that honors and celebrates high achievement.

In the third section, Engelmann describes the elements that must be in place to make significant improvements in students' academic performance. He stresses the importance of an instructional plan for ensuring students' success and helping those who are behind grade level catch up. He provides concrete guidance for changing low performing schools into high performing ones, describing the actions that must be taken to transform student performance.

The final chapter of the book is an essay Engelmann wrote for DI teachers in 1982 called "On Observing Learning." It brings together many of the themes in earlier chapters, such as promoting mastery learning and celebrating success. However, it goes beyond these themes to describe how DI teachers can be fully engaged in their teaching, observing the responses of each child, and how to bring what Engelmann calls "good acting" to their interactions with their students.

Learning to be a good teacher takes time and training. As with all professions, teachers become better instructors as they have more practice and professional development. It also takes time for schools and administrators to learn how to implement DI well. Research shows that schools become stronger and more effective as Direct Instruction becomes institutionalized and stabilized within their day-to-day activities. While this process can take several years, the guidelines in the following chapters will help make this process easier and, ultimately, more successful.

The changes will have life-long implications for students. They will also affect the lives of teachers and administrators. As students learn more effectively and are more confident in their abilities, school climates change. Students like going to school. Teaching becomes more joyful. Administration becomes more rewarding. And, parents become increasingly grateful for the impact the school is having on their students' lives. Taken together, the following chapters show teachers and administrators how they can transform their school to ensure an environment where all students can be successful and confident.

Part I: Successful Learning from Teaching to Mastery

One of the most important reasons that students learn so much and so quickly with Direct Instruction is that they experience mastery learning. They come to understand what they are taught thoroughly and completely. As they master simpler skills, they can easily move into learning and mastering more complex concepts. This allows them to move more quickly through their lessons. In addition, because they are always learning and thoroughly understanding new material, they realize that they are successful students and their confidence improves.

Of course, learning to mastery depends upon good teaching. The DI programs are constructed to promote mastery learning. But, to provide the maximum effect, they need to be taught well. Just as good actors bring characters to life on a stage through their involvement and animation, good teachers bring DI programs to life through their total engagement with the material and their students.

The chapters in this section provide guidelines for teachers as they learn to help all of their students reach mastery. Engelmann describes how he designs Direct Instruction programs to facilitate teaching to mastery. He also provides clear guidelines for teachers and for administrators who want to make sure that all of their students can reap the benefits of mastery learning.

Chapters 1-5 Highlights (to fill in the details, purchase book from NIFDI, 541-485-1973)

Chapter 1. What is a Mastery Learning Program

All Direct Instruction programs involve mastery learning, a very systematic approach to teaching and learning. Much like an engineer carefully plans each element of a complex structure to make sure it is sound and workable, Engelmann and his colleagues carefully plan and test each of the DI programs to make sure that they will work well. In this chapter, Engelmann describes the key design elements of these mastery learning programs. He suggests that we think of a DI program as being like a stairway that transports students to increasingly complex performance levels – step at a time.

In the latter part of the chapter, he explains why mastery learning and the DI programs produce greater student achievement and self-confidence than traditional methods. One reason for this success is the individualized nature of mastery learning. Students aren't pushed into material for which they don't have the needed background knowledge and will, most likely, fail to comprehend. The stair-step progression of the curriculum also allows students to move more quickly. They learn something new each day, building the foundations for more and more learning.

What is a Mastery Learning Program?

When students are taught to mastery, they become smarter, acquire information faster, and develop efficient strategies for learning. Teachers must have an understanding of what mastery is and how to achieve it in their students. However, teachers cannot teach to mastery without referencing the performance of their students. In addition, teachers cannot teach to

mastery without a program design that supports the approach. Teaching to mastery is built upon effective student/program alignment.

Box 1.1 Key Things to Remember About Mastery Learning.

1. DI programs will function as a stairway if a student reaches every stair on schedule. If they have mastered one step, they won't stumble on the next.
2. The stair-step design of DI programs minimizes differences between learners, for all students on a given step have the same skills. At the higher levels, because they all have the needed basic skills, students tend to master new material at about the same rate.
3. If students fall behind the level of a stair, they will lose the benefits of the mastery learning design. Thus it is important to make sure all students have learned the materials.
4. If a student is firmly placed on a step, success at the next step is guaranteed, But, if a student has not mastered the material, failure at the next step is likely.
5. For maximum benefits, teachers need to "teach to mastery", making sure that their students have learned the material.
6. Students in DI programs, who are taught to mastery, progress along a firm, solid staircase of learning. This contrasts sharply with the "spiral curriculum." Where students visit and then re-visit various topics.

Box 1.2 Why Mastery Learning Works.

1. Mastery learning lets teachers make steady, reliable progress in student learning.
2. Mastery learning lets teachers make accurate projections about what students will know later in the school year.
3. Mastery learning allows teachers to individualize teaching for students' skills.

Chapter 2. Teach to Mastery

Teaching to mastery is hard work. It involves close attention to many details throughout the teaching process. Teachers have to pay very close attention to what students are learning and what they are not learning. They have to know who is making mistakes and who isn't. They have to know where mistakes are being made and where they aren't. They have to know if students make mistakes the first time something is presented or if they continue to make mistakes a second time. And they have to do this while keeping students engaged and learning.

In this chapter, Engelmann explains how teachers can manage these tasks. He gives clear guidelines for seeing if students have mastered a lesson. He also describes ways to efficiently measure students' learning.

Box 2.1 Criteria that Indicate Mastery Learning

1. Students should be at least 70 percent correct on anything that is being introduced for the first time.
2. Students should be at least 90 percent correct on the parts of the lesson that deal with skills and information introduced earlier in the program sequence.
3. At the end of the lesson, all students should be virtually 100 percent firm on all tasks and activities.
4. The rate of student errors should be low enough that the teacher is able to complete the lesson in the allotted time.

Box 2.2 Ways Teachers Can Measure Mastery Learning

1. Develop systems to record and to estimate the number of correct responses in class sessions.
2. Review in-program test performance and independent-work performance to find any problems with mastery.
3. Use delayed tests to check on students' understanding and to help students learn to remember new information.

Chapter 3. Supporting Mastery Learning

Teachers can do their best work only if they receive appropriate support. This is especially important when teaching to mastery. In this chapter, Engelmann describes how successful mastery learning requires three key components: curricular programs that foster mastery teaching, teachers who have the skills to teach everything to mastery, and a school environment that supports student mastery and acceleration. This requires schools to use effective programs, to provide teachers with training and coaching, and to make sure that everyone in the school is on-board to support students' mastery.

Box 3.1 Elements of Well-Designed Programs for Teaching to Mastery.

1. They teach everything students will need for later applications.
2. They don't teach things that aren't needed for future applications.
3. They have a series of continuing tracks, introducing new material and systematically reviewing what has already been taught.
4. They don't generate confusion or "misrules" among students.
5. They don't have false clues that lead to students getting the right answer for the wrong reason.
6. They allow students to learn quickly, and they are rewarding for both students and teachers.

Box 3.2 Characteristics of a System that Supports Mastery Teaching and Mastery Learning.

1. All students are appropriately placed in each instructional program.
2. Instructional groups are homogeneous, with all students in the group at the same performance level.
3. Schedules allow adequate time for teaching each group each subject each day; and teachers faithfully follow the schedules.
4. Schedules are coordinated to allow students to transfer easily from one group to another when their performance indicates this is needed. For students in grades K-2 regrouping of students occurs at least three times during the year.
5. Students should make continuous progress throughout the year.
6. All teachers must enforce the same set of school-wide management rules and practices for celebrating academic achievements.
7. Students' performance is regularly monitored.

Chapter 4. Rules for Teaching to Mastery

Teaching to mastery is unfamiliar to many teachers. They weren't taught to mastery when they were in school, most instructional programs don't encourage mastery, and they may never have seen mastery learning occur. Teachers often believe – and are taught to believe – that some students will never really learn the material and that learning part of a subject or concept is all that can be expected of some students. Of course, the basic assumptions of DI are quite the opposite. Direct instruction is built on the principle that all children can learn when they receive appropriate instruction. All children can master material if they are taught.

In this chapter, Engelmann counters the traditional beliefs that many teachers have. He outlines four basic rules for mastery teaching. Along the way, he provides numerous examples that help explain why each of the rules is important and how they work.

Box 4.1 Four Rules for Teaching to Mastery.

1. Hold the same standard for high performers and low performers.
2. At the beginning of the school year, place continuing students who have been taught to mastery no more than 5 lessons from their last lesson of the preceding year.
3. Always place students appropriately for more rapid mastery progress.
4. Move students as quickly and as reinforcingly as their performance permits.

Chapter 5. Benefits of Mastery Learning

Mastery learning is good for students because they learn more, learn faster, and are better prepared for their adult lives. Mastery learning is good for teachers because, as their students experience success and become more confident in their abilities, teaching become easier and more enjoyable. Mastery learning is good for schools. As all students are succeeding and confident learners, the entire school climate will change.

In this chapter, Engelmann describes the many benefits that come from teaching and learning to mastery. He also explains the harm that can come from not teaching to mastery – both to students' learning and to their self-concepts. He notes that teaching to mastery is difficult and requires a lot of hard work, but emphasizes the rewards for both students and teachers.

Box 5.1 Benefits of Teaching to Mastery.

1. Students learn more and learn more thoroughly.
2. Students become better able to learn new material.
3. Because they know they can succeed, students become more self-confident in their ability to learn.
4. When a school uses mastery teaching for several years, the lives of its students can be transformed.

Box 5.2 The Effects of Not Teaching to Mastery

1. Failing to teach to mastery promotes a negative self-image as students come to feel they are a failure.
2. Students who believe they can't do the work will often give up and not engage in their school work.
3. Teaching students who have not had successful learning experiences or who have negative self-views take much more time and are far less rewarding than teaching those who have experienced mastery learning.

Box 5.3 How Students Taught with Mastery Will Change

- 1. They will be able to learn new material that has the same structure in fewer trials.**
- 2. They will know more information and more operations.**
- 3. They will have more skill in applying what they have learned.**

Part: II Creating Self-Confident Students

- 6. Learning to be a Good Student**
- 7. Making Clear and Positive Expectations**
- 8. Using Data to Show Student's Success**
- 9. Eliminating Undesired Behavior**
- 10. Celebrating Good Performance**

Part III Changing Low Performing Schools to High Performing Schools

- 11. Breaking the Cycle of Low Achievement**
- 12. Making Sure All Students Succeed**
- 13. Creating a Totally Responsive School**

IV. The Rewards of Effective Teaching

- 14. An Essay for the DI Teaching.**