

SELF-DETERMINED LEARNING THEORY

Construction, Verification, and Evaluation

Edited by

Dennis E. Mithaug • Deirdre K. Mithaug
Martin Agran • James E. Martin • Michael L. Wehmeyer

Self-Determined Learning Theory

**Construction, Verification,
and Evaluation**

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Self-Determined Learning Theory

Construction, Verification, and Evaluation

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Contents

Preface	ix
PART I: THEORY CONSTRUCTION	1
1 Understanding the Engagement Problem	3
<i>Dennis E. Mithaug, Deirdre K. Mithaug, Martin Agran, James E. Martin, Michael L. Wehmeyer</i>	
2 How Engagement Affects Adjustment	19
<i>Dennis E. Mithaug, Deirdre K. Mithaug, Martin Agran, James E. Martin, Michael L. Wehmeyer</i>	
3 How Adjustment Affects Learning	37
<i>Dennis E. Mithaug, Deirdre K. Mithaug, Martin Agran, James E. Martin, Michael L. Wehmeyer</i>	
PART II: PREDICTION VERIFICATION	59
4 Assessing Self-Determination Prospects Among Students With and Without Disabilities	61
<i>Dennis E. Mithaug, Peggine L. Campeau, Jean M. Wolman</i>	

5	Assessing Prospects for Self-Determination Among College Graduates With and Without Disabilities <i>Sherrell Powell, Dennis E. Mithaug</i>	77
6	Assessing Self-Determination Prospects of Students With and Without Disabilities in The Gambia, West Africa <i>Amadou Sohna Kebbeh, Dennis E. Mithaug</i>	89
7	Assessing Self-Determination Prospects of Students With Different Sensory Impairments <i>Susan Lipkowitz, Dennis E. Mithaug</i>	104
8	Assessing Adjustment Gains by Students in General and Special Education <i>Dennis E. Mithaug, Deirdre K. Mithaug</i>	121
PART III: PRESCRIPTION VERIFICATION		139
9	The Effects of Choice Opportunities and Self-Regulation Training on the Self-Engagement and Learning of Young Children With Disabilities <i>Deirdre K. Mithaug, Dennis E. Mithaug</i>	141
10	The Effects of Problem-Solving Instruction on the Self-Determined Learning of Secondary Students With Disabilities <i>Michael L. Wehmeyer, Martin Agran, Susan B. Palmer, James E. Martin, Dennis E. Mithaug</i>	158
11	The Effects of Self-Regulated Problem-Solving Instruction on the Self-Determination of Secondary Students With Disabilities <i>MaryAnn Columbus, Dennis E. Mithaug</i>	172
12	The Effects of Optimal Opportunities and Adjustments on Job Choices of Adults With Severe Disabilities <i>James E. Martin, Dennis E. Mithaug, James V. Husch, Eva S. Frazier, Laura H. Marshall</i>	188

CONTENTS	vii
13 The Effects of Choice Opportunities on the Engagement of Prospective Teachers in Student-Determined Learning <i>Deirdre K. Mithaug, Dennis E. Mithaug</i>	206
PART IV: THEORY EVALUATION	221
14 The Credibility and Worth of Self-Determined Learning Theory <i>Dennis E. Mithaug, Deirdre K. Mithaug, Martin Agran, James E. Martin, Michael L. Wehmeyer</i>	223
Author Index	247
Subject Index	253

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Preface

We wrote this preface to prepare you for the task that lies ahead, which is to introduce to you a different way of explaining learning. We appreciate that there may be obstacles to accepting our explanation, mainly because there are many beliefs about learning you could hold that are different from the one in this book. Knowing this, we ask you to set aside those beliefs for the next 14 chapters. Then, after reviewing our case for self-determined learning theory, you can decide for yourself whether those beliefs need adjusting in light of what you have learned. We look forward to your review and, of course, any adjustments you may make toward adopting our explanation for learning.

In the upcoming chapters you will learn that self-determined learning theory is based on the claim that learning *is* adjustment. We explain this by showing a causal connection between opportunities to learn, engagement in those opportunities, adjustments to them, and learning. These factors function as follows. Opportunities for gain provoke engagement, engagement affects adjustments, and adjustments determine what is learned. This is self-determined learning theory in a nutshell. It explains why, how, and what people learn. People learn when they are provoked by an event that interrupts their goal pursuits—the *why* of learning. They engage the event by altering their expectations, choices and actions to control the event—the *how* of learning. And they adjust by altering their beliefs and patterns of responding to the event—the *what* of learning.

Self-determined learning theory explains this process of learning through adjustment by claiming that when provocative opportunities are

as favorable as possible for engagement (optimal opportunities) and when the resulting adjustments to those opportunities are as effective as possible under the circumstances (optimal adjustments), then learning is likely to maximize. Hence, the theory claims that optimal opportunities and optimal adjustments maximize learning.

In the book we offer compelling reasons for using this theory to explain learning. One is that if learning is adjustment, then improving the ability to adjust will improve the ability to learn. Throughout the book we show this to be the case for students at risk for learning in that they tend to be poor adjusters. However, when they improve their capacity to adjust, they improve their ability to learn. This, in turn, improves their prospects of adjusting and learning in situations at school, home, and the community.

Another reason for using this learning-as-adjustment explanation is that it solves the learning transfer conundrum yet to be adequately explained by existing theory. Claiming that adjustment is learning leads to the conclusion that failure to generalize to new situations is due to poor adjustment. Therefore, by learning to adjust, students learn to transfer what they know to new situations. In the book we show how improving students' ability to adjust increases their generalization of appropriate learning to different situations.

The third reason for considering this account is that it places learning where it occurs naturally, as a reaction to a provoking necessity, interest, or curiosity. Learning occurs when students are provoked into figuring out *what to expect* from a new circumstance, *how to choose* what to do, and then *how to act* on choice to produce a predictable result from the circumstance. These discovery elements of learning through adjustment require thinking, acting, and evaluating in order to deal with the provocation. In the book we identify the instructional elements of provocative choice opportunities that sustain engagement sufficiently for students to produce the adjustments needed to maximize their learning.

This leads to the last of our compelling reasons for explaining learning as adjustment. It accounts for why learners learn more when they experience freedom of choice than when they are denied choice. This is because the prerequisite to enjoying freedom is being able to deal with adjustment challenges in ways that advance one's interests. Learners who are free to adjust as they wish to get what they need and want learn more about various pursuits than do learners who are not free to adjust as they wish. Self-determination advocates argue similarly, claiming that learning in adult life is driven by being free to engage in one's pursuits. In fact, adult learning theorist Candy (1991) went further, claiming that self-determined learning or "learning for oneself is the prototype of all learning" (p. 30). And he cited the following 1866 passage by Craik from *The Pursuit of Knowledge Under Difficulties* to prove his case.

Originally, all human knowledge was nothing more than the knowledge of a comparatively small number of such simple facts as those from which Galileo deduced the use of the pendulum for the measurement of time, and Newton the explanation of the system of the heavens. All the rest of our knowledge, and these first rudiments of it also, a succession of individuals have gradually discovered, each his own portion, by their own efforts, and without having any teacher to instruct them. In other words, everything that is actually known has been found out and learned by some person or other, without the aid of an instructor. There is no species of learning, therefore, which self-education may not overtake; for there is none which is not actually overtaken. All discoverers (and the whole of human knowledge that has not been divinely revealed) in the creation of discovery have been self-taught, at least in regard to that which they have discovered. [1866, p. 13]. (Candy, 1991, p. 30)

In the book we show how self-determined learning theory explains these claims about learning-as-adjustment. The theory explains why building students' adjustment capacities maximizes learning, and why it also improves students' ability to generalize learning to new situations. The theory explains why instruction through provocative challenges engages students to make adjustments needed to learn what they need and want to know. And, most important, the theory explains why learning to adjust to meet one's own needs and interests is necessary for self-determination in life. Again, Dewey (1909/1975) was right when he argued that the goal of education is to prepare young people for life in the free society.

We divided the book into theory construction, theory verification (two parts), and theory evaluation—and then organized the 14 chapters using the four steps of *Learning to Theorize: A Four-Step Strategy* (Mithaug, 2000). The first step of that approach defines a problem of not understanding something as a discrepancy between what we know and what we don't know about a circumstance. The second step searches for information and explanations to change the condition of not knowing into a condition of knowing. The third step evaluates the credibility and worth of the explanation constructed in step 2. The fourth step adjusts existing beliefs so they are consistent with the new theory (Mithaug, 2000, p. x).

We completed the first step of the four-step strategy—defining the problem—in chapter 1, "Understanding the Engagement Problem," by defining our problem of understanding as a discrepancy between what we know about engagement and what we don't about its effect on learning. We completed step 2—find reasons and an explanation for the discrepancy—in chapters 2 and 3. In chapter 2, "How Engagement Affects Adjustment," we identify the factors that connect engagement with adjustment. In chapter 3, "How Adjustment Affects Learning," we solve the discrepancy problem with a theory that explains how the factors identi-

fied in chapter 2 explain what we didn't know about how engagement affects learning.

We completed step 3—evaluating the credibility and worth of a theory—in the remaining chapters of the book. In chapters 4 through 13 we describe studies that test the new theory's predictions and prescriptions. And in chapter 14, "The Credibility and Worth of Self-Determined Learning Theory," we evaluate the theory's credibility by assessing its coherence, validity, and verifiability and then we evaluate the theory's worth by assessing its significance, scope, and utility.

We left step 4—adjusting beliefs—for you to complete. It is beyond the scope of the book because only you can decide whether the theory we have proposed is credible and valuable enough to adopt and, if it is, whether adopting it will require that you adjust other beliefs you hold about learning.

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THEORY CONSTRUCTION

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Understanding the Engagement Problem

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In this book we introduce a theory of learning that explains why learning maximizes during self-engagement. We review past research on factors associated with engagement and original research on the credibility and worth of a theory that predicts learning will maximize when engagement produces optimal adjustments to new challenges. The theory explains that this happens when learners believe their opportunities for gaining something from a circumstance are valuable and manageable *and* when they know how to regulate their expectations, choices, and actions to produce results they expect from the circumstance. Then they engage the situation to optimize their adjustments and maximize their learning. The theory also predicts that as students acquire the knowledge and skills they need to deal with new situations, they experience sufficient control over the results of their efforts to believe subsequent opportunities for gain from the situation will give them more of what they need and want to know. This is how they become self-determined learners.

Unfortunately, self-engagement and learning like this are rare in school, as the following examples illustrate. Example A presents a general education classroom version of the problem as described by Zimmerman, Bonner, and Kovach (1996). Example B presents the special education version of the problem as described by Sands and Wehmeyer (1996).

EXAMPLES OF LEARNERS

Example A: Disengaged General Education Learners

Calvin, a bright sixth grader who has never experienced much success in school, has dreamed of achieving better and even thinks he may try to be the first person in his family to graduate from high school. Considering his family's low level of education, it is not surprising that Calvin has not developed many essential study skills and has many unfortunate habits, such as procrastinating, skimming reading assignments, cramming for tests at the last minute, and writing in a haphazard manner. He has a low sense of self-efficacy about improving his grades in school and generally appears poorly motivated in class.

Maria is an eighth-grade student who enjoys a wide social network. She diligently completes her work but only in a superficial way. Although she tries hard in school, schoolwork is less important to her than her friends, and as a result she gets only average grades. She is very popular among her classmates, and she usually "studies" daily with friends—sharing answers to math or science problems and reading her assignments cursorily between extended discussions about the day's events. Maria prepares minimally for tests, usually cramming the night before the exam, and her writing skills are a year below grade level. She has only a moderate amount of self-efficacy about doing well academically and tries not to think much about the future. (Zimmerman et al., 1996, pp. 6–7)

Example B: A Disengaged Special Education Learner

Carey is a sociable sixth grader who lacks determination in all that she does. She is a poor student, dislikes school, avoids homework, and spends much of her time watching television and hanging out with friends. She dreams about what she might be when she grows up but lacks confidence that she will ever become what she wants to be. Moreover, she has no idea what steps are necessary to pursue her dreams. When asked what grades she expects to earn each semester, she gives inconsistent answers. Sometimes she says she will get all A's, and other times she says she expects to fail all her courses. This is typical of how she looks at the future. Her goals are either so high she cannot achieve them or so low she is certain of achieving them. Either way, she has no intention of changing what she does or how she thinks. This is because when she sets expectations that are too high, no amount of planning and working will make any difference, and when she sets expectations that are too low, any amount of planning and working will be effective. Consequently, there is never any connection between what Carey expects and what she does. Frequently, this causes her to feel depressed and helpless because she depends so much on external events or people for direction and stimulation. She doesn't know what to improve about herself or how to improve herself, and she doesn't know how to enhance her opportunities.

She is a poor self-regulator, too. Carey lacks self-determination. (Mithaug, 1996, p. 148)

Students like Maria, Calvin, and Carey don't appear to have discovered the intrinsic rewards of controlling their own learning. As a result, they never have that "flow" experience Mihali Csikszentmihalyi described for people whose engagement in self-imposed challenges enhances their sense of control over their circumstances.

The optimal state of inner experience is one in which there is order in consciousness. This happens when psychic energy — or attention — is invested in realistic goals, and when skills match the opportunities for action. The pursuit of a goal brings order in awareness because a person must concentrate attention on the task at hand and momentarily forget everything else. These periods of struggling to overcome challenges are what people find to be the most enjoyable times of their lives. . . . A person who has achieved control over psychic energy and has invested it in consciously chosen goals cannot help but grow into a more complex being. By stretching skills, by reaching toward higher challenges, such a person becomes an increasingly extraordinary individual. (Csikszentmihalyi, 1990, p. 6)

Self-determined learning theory identifies the conditions that provoke students like Calvin, Maria, and Carey to engage the learning challenges described by Csikszentmihalyi (1990). It explains the *why* and *how* of self-engagement. Students engage themselves when they have optimal opportunities to choose what they will do and how they will do it — the *why* factor. And they stay engaged to the extent they adjust their expectations, choices, and actions effectively enough to produce the gain they expect from those opportunities — the *how* factor. In other words, students get and stay engaged to the extent they adjust optimally to opportunities that provoke them into adapting to new and challenging circumstances. This applies to all students, with or without disabilities and across cultures and time. The theory predicts that students who are motivated to adapt to challenging opportunities will be like Doris in example C. They will enjoy learning enough to become life-long achievers.

Example C: An Engaged Learner

Doris is a bright . . . sixth-grade student who has learned to regulate her behavior to get what she wants over the long haul. She is an experienced achiever. She is determined to do well in school because she knows that good grades will help her get what she wants after she graduates. Doris also knows what she can do and how to compensate for what gives her difficulty. She sets goals that are consistent with her needs and interests, strives to achieve them, and then experiences great satisfaction when she makes

progress. Most important, Doris expects to achieve goals that are *just beyond* what she achieved in the past, which often requires more work and better methods of producing gain than what she has done previously. No one tells her what goals she should set or how she should meet them, although she often seeks advice when she gets confused and does not know where to begin. Doris has the habit of performing at or near her capacity in most of what she does. After meeting one goal she sets a slightly more ambitious goal the next time. This increases her capacity and improves her opportunity to act in self-determined ways. (Mithaug, 1996, p. 147)

We know much about students like Doris who pursue new opportunities to achieve all they can. These students believe they are causal agents in dealing with their circumstances. They enjoy the challenge of learning, and they persist even when their pursuits present difficulties. Students like Doris thrive on having choices about what and how to adapt in order to learn because then they can regulate their actions to take advantage of their strengths and to compensate for their weaknesses. They are free to adjust their expectations to new situations and to set goals that are consistent with what they can do. And when students are motivated to produce results that are important to them, they strive to develop plans that will help them learn as much as they can, which leads them to believe their decisions and actions are the cause of their success or failure. Consequently, when they fall short of expectations, they know what to do to improve, and when they get results they want they feel in control because they know what they did to succeed. Finally, when students' feelings of control persist their experience of engagement is similar to that described by Csikszentmihalyi (1990) as "flow."

This chapter identifies the antecedents to engagement that are likely to discourage students from becoming self-determined learners like Doris. One of these is the learning opportunity that can either motivate or discourage students who face challenges to adjust in order to learn. The evidence suggests that a student's perceptions of a circumstance can discourage engagement by interpreting it to be unimportant or impossible to control. Because every circumstance is filtered through these personalized views of what constitutes an opportunity or an obstacle for gain, students' beliefs will affect their engagement and learning.

Indeed, teachers act on this view implicitly when they make learning opportunities match student needs and abilities so that some learning occurs. Using principles of individualized instruction, they tailor the demands and rewards of each challenge to match student perceptions of what they can do to produce gain toward a valued outcome, and this encourages them to learn. Used skillfully, this matching of challenges to *existing* perceptions of opportunity guarantees that every student learns something. For some educators, *this* is effective teaching.

What emerges across various commentaries is the image of effective teachers taking an active, direct role in the instruction of their students. These educators give many detailed and redundant instructions and explanations when introducing a new concept. . . . They give ample opportunity for guided practice with frequent reviews of student progress. . . . They check for understanding, using such techniques as questioning, consistent review of homework, and review of previous day's lessons before moving on to new areas. Such teachers move among students when they are involved in practice seatwork. Feedback is provided frequently and with meaningful detail. Effective teachers use feedback strategies for positive reinforcement of student success. Feedback also provides the basis for reteaching where necessary. Effective teachers take an active role in creating a positive, expectant, and orderly classroom environment in which learning takes place. To accomplish these climate objectives effective teachers actively structure the learning process and the management of time, guiding in such things as signals for academic work and maintaining student attention by group alerting and accountability techniques and through variation in educational tasks. (Berliner, 1984, cited in Bickel & Bickel, 1986, pp. 492-493)

Although effective by some indicators, we suggest that this approach can also have the undesirable effect of teaching students to expect all learning opportunities to be perfectly matched to their needs, interests, and abilities. This in turn causes them to leave the learning-friendly environment lacking the capacity to adjust to unfamiliar circumstances on their own. Hence they exhibit the same learned helplessness that placed them in those optimized situations in the first place. Ellis (1986) described the problem as follows.

Instructors may facilitate retention of dependency on others by the nature of strategies being taught, as well as corrective feedback, reinforcement and structures used in the classroom. . . . Feedback which is heavily teacher-oriented (i.e., "Let me check your answers . . . I think you did a good job here . . . now I want you to . . .") may over the long run, subtly encourage the student to be more dependent on others for metacognitive processes such as monitoring and reinforcement. In turn, feedback which is student-oriented (i.e., "How well do you think you did? What are the best parts of your work? What should we focus on next to make it better?") facilitates students' use of metacognitive processes related to strategy use.

In addition, classroom structures which provide little daily and weekly opportunity for students' input or selection of instructional goals, activities and rule setting can subtly reinforce an external locus of control, e.g., classroom environments which are highly structured, assignments are predetermined by the teacher without considering the students' goals, little opportunity for students to participate in the decision making process regarding their education, little opportunity for the student to verbally state what is being learned and why. In short, efforts by some teachers to run highly or-

ganized and tightly structured classrooms may inadvertently reduce student opportunities to learn and use metacognitive skills of self-structuring and monitoring. While satisfying the need to help students by frequently acting as a controlling agent and too frequently or unnecessarily offering help, teachers can be training their students to be more dependent on the instructor for problem solving, guidance, and feedback. (Ellis, 1986, p. 67)

EXPLAINING DISENGAGEMENT

This is the problem we want to understand. We want to figure out what causes disengagement so we can explain how engagement produces learning. Fortunately, on the question of disengagement, there are several explanations. One is that students who believe they are helpless in controlling the content and course of their learning are likely to avoid it when they can. Diener and Dweck (1978) offered support for this theory of learned helplessness in a study reporting that students who held beliefs that they were helpless in the face of challenge were less likely to improve their achievement than were children who believed they were in control of their circumstances. Although mastery children spent time finding new ways of improving poor outcomes, learned helpless children spent time explaining why they failed. Other theories have offered similar explanations. Rotter's (1966) locus of control theory claims that people who exhibit an external locus of control are less likely to take action to improve their circumstances than are people who exhibit an internal locus of control. Weiner's (1976) theory of causal attribution claims people who attribute their success and failure to factors outside of their control are less likely to persist in the quest to succeed than are people who attribute success and failure to factors they control. And Bandura's (1982) self-efficacy theory postulates a connection between beliefs and engagement, claiming that people with low self-efficacy perceptions are less likely to persist and succeed in their pursuits than are people with high perceptions of self-efficacy. Finally, Corno and Mandinach (1983) claimed that negative perceptions interact with the process of adjusting to classroom challenges to affect cognitive engagement.

Students come to classroom task situations with numerous past experiences and knowledge, with skills and dispositions of various kinds. Among these knowledge networks may or may not be a schema for attacking a variety of cognitive tasks like those encountered in classrooms and other achievement situations. Students higher in general mental ability are more likely to have developed a self-regulated learning schema, as measures of general ability, call forth self-regulation processes. . . . These "aptitudes" set in motion *student interpretations of the instructional environment*, which act in consonance

with characteristic features of classroom instruction to determine the amount and kind of cognitive engagement a student will demonstrate on a given task. (Corno & Mandinach, 1983, p. 102, *italics added*)

When students interpret (perceive) the demands of the instructional challenge inadequately, their adjustments yield poor results and lower self-efficacy perceptions.

Ineffective or inefficient interpretations of task information, such as a failure to reduce and organize, may yield lower initial performance expectations if students are aware of their limitations. Initial expectations (both for outcomes and success) and the form of cognitive engagement that results once the task is begun, in turn, affect continued self-efficacy. (Corno & Mandinach, 1983, p. 102)

On the other hand, when students succeed in controlling difficult learning situations through their self-regulatory behavior, they believe they are responsible for controlling the situation.

When the student determines he or she has performed a difficult task successfully, favorable attributions should result. If either self-regulation, resource management, or task focus were actually engaged, a strategy attribution (i.e., "I used the right approach") would be expected. Strategy attributions are internal and controllable, by Weiner's categories. (Corno & Mandinach, 1983, p. 102)

The model in Fig. 1.1 describes the causal sequence implied by these theories. When students hold negative beliefs about learning opportunities, they tend to underperform to produce undesirable results and generate experiences of helplessness. This in turn tends to reinforce beliefs about being unable to control new challenges. As you can see from the arrows connecting these factors, a self-perpetuating pattern emerges that sustains negative beliefs, underperformance, and undesirable results. The idea behind learned helplessness is that instead of learning beliefs and behavior patterns that yield positive results and experiences, underachieving students learn beliefs and behaviors that yield negative results and experiences. Hence they learn to be helpless in the face of new challenges.

EXPLAINING SELF-ENGAGEMENT

The causal model depicted in Fig. 1.1 also suggests ways of breaking cycles of learned helplessness. It suggests, for example, that interventions to change student beliefs, performance, or results will replace experiences of

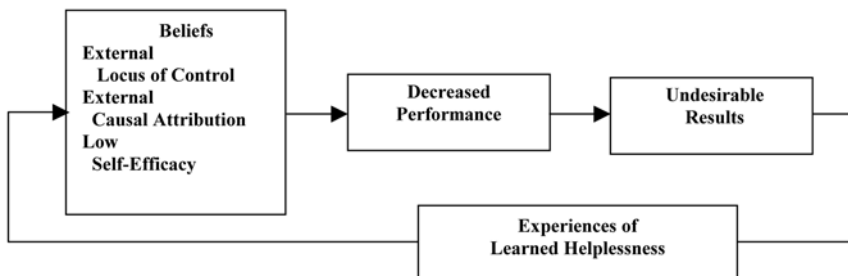


FIG. 1.1. Beliefs, actions, results, and experiences during learned helplessness.

learned helplessness with experiences of learned control. Indeed, this was the basis of Wang's (1983) recommendation for teaching underachievers in general and special education.

It appears that instructional intervention programs can shift students' perception of locus of control toward the internal orientation. Moreover, research shows a relationship between changes in student perceptions of locus of control and improvements in school performance. In light of these research and development efforts, it seems that the next appropriate step is to design and study the processes and effects of learning environments that attempt to maximize student learning through the development of students' sense of personal control. (Wang, 1983, p. 216)

She argued that teaching students to be effective self-regulators would increase their sense of internal locus of control, which in turn would increase engagement and learning:

(a) When students are taught the prerequisite skills for managing their learning behaviors and learning situations, they can successfully take on self-management responsibility; (b) as students gain increasing capability to exert control over their school learning, their task performance improves; (c) it is possible to design intervention programs to foster the development of students' sense of personal control; (d) students' belief in their personal control may be an important factor in allowing them to resist the adverse effects of teacher expectations; and (e) learning environments that are effective in fostering perceptions of self-responsibility need organizational and curricular structures that allow students to acquire both academic and self-management skills. (Wang, 1983, pp. 242-243)

Proponents of self-determination made similar claims for students with disabilities. They argued that when students with disabilities learn to take control of their learning by improving their beliefs, self-regulation, and

TABLE 1.1
Three-Component Classifications of 18 Self-Determination Elements

<i>Beliefs</i>	<i>Self-Regulation</i>	<i>Adjustment</i>
1. Knowing needs and strengths	1. Self-advocacy skills	1. Self-monitoring skills
2. Knowing interests	2. Self-instructional skills	2. Self-evaluation skills
3. Having an internal locus of control	3. Problem-solving skills	3. Self-reinforcement skills
4. Making internal causal attributions	4. Choice-making skills	4. Goal-attainment skills
5. Having positive perceptions of self-efficacy	5. Decision-making skills	5. Adjustment skills
6. Having optimal opportunities for choice	6. Goal-setting skills	
	7. Performance skills	
1. Powers et al. (1998)	—	—
2. Sitlington & Neubert (1998)	—	—
3. —	Dolls & Sands (1998)	—
4. Carpenter (1998)	Carpenter (1998)	—
5. Curtis (1998)	Curtis (1998)	—
6. Fullerton (1998)	Fullerton (1998)	—
7. Gothelf & Brown (1998)	Gothelf & Brown (1998)	—
8. Halpern (1998)	Halpern (1998)	—
9. Van Reusen (1998)	Van Reusen (1998)	—
10. Wehmeyer (1998)	Wehmeyer (1998)	—
11. —	Agran (1998)	Agran (1998)
12. —	Hughes & Presley (1998)	Hughes & Presley (1998)
13. Martin & Marshal (1998)	Martin & Marshal (1998)	Martin & Marshal (1998)
14. Mithaug, Wehmeyer, Agran, Martin, & Palmer (1998)	Mithaug et al. (1998)	Mithaug et al. (1998)

adjustments, they increase their engagement and achievements during school and beyond. Wehmeyer and Sands (1998) identified many of the methods believed to produce these changes. Table 1.1 lists them according to their purported improvement in beliefs, self-regulation, and adjustment. The first row identifies interventions that target each causal category. The first column lists six types of information that improve beliefs about new challenges. The second column lists seven types of self-regulation skills that affect adjustments. And the third column lists five strategies that improve adjustment outcomes. The second row identifies published articles making these claims. As you can see, two articles identify strategies to improve beliefs. Ten articles describe strategies to improve self-regulation, beliefs and self-regulation, or self-regulation and adjustment. But only two articles describe approaches to improving beliefs, self-regulation, and adjustment.

WHAT WE KNOW AND DON'T KNOW

This is what we know about disengagement and how to deal with it. Persistent disengagement is due to self-defeating cycles of beliefs, actions, and results that can be reversed with interventions that alter those modes of believing, self-regulating, and adjusting. Moreover, those interventions are effective to the extent they give students control over their engagement and learning. When this happens, cycles of control replace cycles of learned helplessness.

The causal model in Fig. 1.2 explains how this might work. The upper half of the model represents engaged learning and the lower half represents disengaged learning. The upper half shows how positive beliefs, effective self-regulation, and successful results lead to learned control, and the lower half shows how negative beliefs, ineffective self-regulation, and unsuccessful results lead to learned helplessness. The explanation for learning suggested by this model is that beliefs about circumstances (left box) provoke self-regulation (middle box), which yields an adjustment (right box) that the learner interprets (attributions for success and failure) as being a gain or a loss for the valued pursuits.

When students are fully engaged in attempts to overcome difficult challenges, they adapt to those circumstances in order to learn as much as they can from them. Doris did this when she set successively higher goals for herself, but did Carey? Does the adaptive process depicted in Fig. 1.2 offer clues to an answer? We think it does. We suspect that the adaptive factors explaining why students engage new learning challenges in order to succeed also explains why they avoid new challenges. The model in

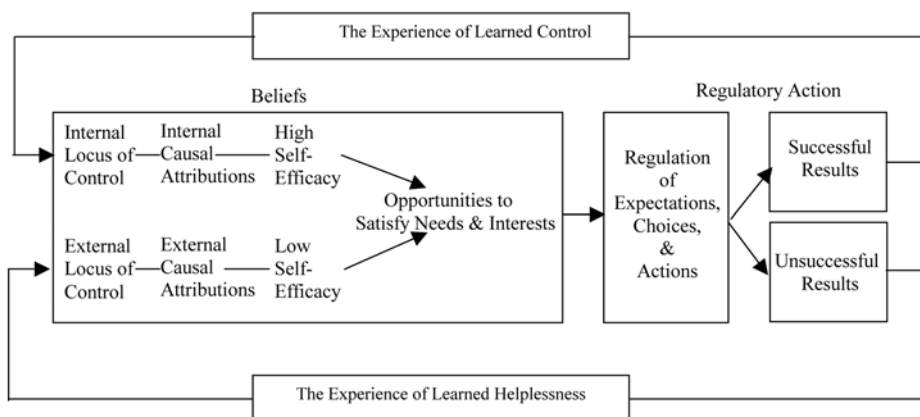


FIG. 1.2. Causal factors leading to experiences of learned control and learned helplessness.

Fig. 1.2 suggests, for example, that one factor is how students *perceive* their circumstances. Another is how they *act* on their perceptions to improve their situation, and a third is how they *feel* about the changes they make. It is very likely that these factors interact, as indicated in the model, to affect prospects of engaging new circumstances in the future. The question to be answered is, how do these factors interact to produce adjustments that maximize learning?

There is also much we do not know about disengagement and its instructional solutions. We don't know, for example, why some beliefs and perceptions tend to be provocative and to increase engagement whereas other beliefs and perceptions do not. Nor do we know why some episodes of engagement lead to adjustments that maximize learning and other episodes do not. The problem is that this ignorance about what instigates and sustains engagement limits our ability to explain why some instructional interventions work and others do not. Right now the best we can say is that some adjustments are self-defeating and that sometimes instruction works to reverse those patterns and produce learning. Why this occurs or under what conditions we cannot say.

We will search for answers to these questions by defining learning as *an adaptation to a new circumstance*. This will direct us to find reasons that explain why and how students engage challenges that require them to adjust in order to learn. It will lead to an examination of how students' beliefs and perceptions affect their actions to engage a new circumstance (cognitive factors), how those actions alter a circumstance to produce various outcomes (behavioral factors), and how feelings about the resulting adaptation affect subsequent beliefs about new circumstances (affective factors).

WHAT THE BOOK EXPLAINS

In this chapter we reviewed what we know about engagement and learning. In the next chapter, "How Engagement Affects Adjustment," we review research on the factors identified in the causal model of Fig. 1.2. This will help us understand how engagement produces those adjustments that are responsible for new learning. In chapter 3, "How Adjustment Affects Learning," we summarize the reasoning in chapters 1 and 2 to explain why learning maximizes when opportunities and adjustments optimize.

This is the theory of self-determined learning. It explains why and how opportunities to learn affect learning. The *why* factor is the optimality of the learning opportunity, which indicates how favorable the challenging situation appears to the learner. The *how* factor is the optimality of the adjustment, which indicates how effective the learner regulates expecta-

tions, choices, and actions to produce expected gain from the situation. According to the theory, when opportunity and adjustment conditions are as favorable as possible for the learner, self-engagement persists, a sense of control over the challenging circumstance develops, and learning maximizes. During these two optimality conditions, engagement persists because it produces results learners expect and want. They feel in control of gain production because they know exactly what to do to produce those results. They maximize learning because their beliefs, perceptions, and actions are sufficiently adapted to the situation to produce predictable gain from it.

According to this explanation for learning, the *adaptation* learners create to deal with a new situation is *what they learn*. They learn a new pattern of engagement. They experience a new feeling of control over the situation. They acquire a new set of beliefs and perceptions about the new circumstance. And as a result of this change in their adaptive states, the circumstance that was once new and challenging to them because it was *unknown and uncontrolled* becomes old to them because it is *known and controlled*. Table 1.2 presents this explanation for learning through adjustment.

In parts II and III of the book, we present studies to verify this explanation for engagement and learning. In part II we test the predicted effects of optimal opportunities and adjustments by comparing students with known differences in their self-engagement, sense of control, and learning. In part III we test prescriptions for instruction by determining whether an improvement in one or both optimality factors produces a corresponding increase in engagement, sense of control, and learning.

The studies in part II compare the opportunities and adjustments of students with reputed differences in engagement, sense of control, and achievement. We reasoned that because students with and without disabilities are reported to be different on these indicators, they are likely to

TABLE 1.2
Self-Determined Learning Theory: How Optimal Opportunity
Maximizes Engagement, Sense of Control, and Learning

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1. The closer to optimal the opportunities for experiencing gain, the more likely is the regulation of expectations, choices, and actions to produce gain.
 2. The more often the regulation of expectations, choices, and actions to produce gain, the more likely is it that adjustments optimize as expectations, choices, actions, and results become adaptive, rational, efficient and successful.
 3. The closer to optimal the adjustments to an opportunity, the more persistent is the engagement to produce gain, the greater is the feeling of control over gain production, and the closer to maximum is the learning from that adaptation.
 4. Therefore, the closer to optimal the opportunities for experiencing gain, the more persistent is the engagement, the greater is the sense of control, and the closer to maximum is the learning.
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