

Web Chapter 3: Promoting Interest and Motivation in Learning

Chapter Objectives

- Describe techniques to promote interest and motivation in lessons for all learning outcome types.
- Given an instructional activity or instructor's statement, categorize that activity/statement as to motivational strategy type, attention, relevance, confidence, or satisfaction.

Introduction

Interests and motivation are desired learner characteristics. We all know who the “disinterested” and “unmotivated” students are, but even the most unmotivated students have motivation (except in cases of clinical depression). They may be motivated to work on their cars after school, to get dates, to make some money, or to do myriad activities and interests that have nothing to do with their schooling. When we talk about wanting our students to be motivated, we mean, of course, that they be motivated toward the instruction in which they should be participating. We want the students to *choose* to attend to what is going on in instruction and *choose* to apply effort in learning from it. (For a discussion of effort and learning, see Rollett [1987].)

The study of motivation has in recent years shifted from a predominance of interest in reinforcement theory and techniques derived from it to a more cognitive-centered study emphasizing intrinsic factors (Deci, 1975; Graham & Weiner, 1996; Stipek, 1988, 1996). Techniques based on reinforcement theory tend to emphasize considerations of reward and punishment and are generally considered “extrinsic” in their orientation. *Extrinsic* techniques are those that rest on evaluation and reward from an external source. It is

difficult to conceive of a reinforcement-based approach that would not be extrinsic.

Intrinsic motivation rests on conditions within the learner and within the task that can make an effort (such as learning the valences of elements in the periodic table) satisfying.

Five mainstreams of work within the study of intrinsic motivation illustrate some key theory-building concerns:

1. *Competence*, in which factors such as the challenge of a task are included (e.g., White, 1959).
2. *Curiosity*, in which factors such as complexity, incongruity, and surprise are included (e.g., Berlyne, 1966).
3. *Autonomy*, in which self-determination and perceptions of causality are primary issues (e.g., deCharms, 1976).
4. *Volition*, in which processes leading to internal valuing are of interest, such as self-regulation and processes of internalization (e.g., Ryan, Connell, and Deci, 1985).
5. *Goal-orientation*, in which two primary sorts of goals that learners may hold are studied: performance goals and learning goals (Dweck, 1986).

Theories of motivation may combine elements in particular ways. For example, the work of Csikszentmihalyi et al. (1988, 1993) has led to the conception of a state of optimal experience that they call “flow.” *Flow* occurs when an individual is engaged in a task that is perceived as challenging and that the individual feels in possession of sufficient skill to complete. *Challenge* is defined in terms of goal-directed activities that require effort to achieve, and *skill* is defined in terms of the efforts expended to achieve the goal. Viewing the ratio of challenge to skill, four primary motivational states are described: (1) apathy (low skill, low challenge); (2) boredom (high skill, low challenge); (3) anxiety (high

challenge, low skill); and (4) flow (high skill, high challenge). Work on the construct of flow and its measurement has led to studies such as Rezabek's (1994), which investigated the utility of Csikszentmihalyi's Experience Sampling Methodology (ESM) and other measurement techniques to determine motivational states in instructional situations viewed in the context of Keller's ARCS model of motivation in instructional design (the ARCS model is described later in this chapter). Rezabek found that modified versions of ESM techniques were usable in measurement of intrinsic motivation in instructional settings. Since flow, as well as the other states described by this theory—apathy, boredom, and anxiety—are all commonly present in education and training, knowledge of influences upon them will be of particular use to instructional designers.

Research on motivation in instruction is seen in studies that investigate the role that *goal orientation* has on learning. When students are motivated to learn from instruction, two primary orientations appear to be involved: performance goals (such as getting good grades or being recognized as successful) and learning goals (an internalized intention to learn) (Dweck, 1990). The kind of goal orientation a student possesses has been found to make a great deal of difference in learning, and researchers are learning how this factor interacts with others that can be present in instruction. For example, a study exemplifying such research is one that investigated relationships among goal orientation, learners' varying perceptions of their competence, and students' valuing of and interest in the subject being studied (Miller, Behrens, Greene, & Newman, 1993). The study examined the relationship of these factors to volition-related activities such as goal-setting and self-monitoring, and use of task-appropriate cognitive strategies. Many relationships predicted by theory were supported, such as the relationship between possession of a learning-

centered goal orientation and use of cognitive strategies to help learning. In another study Greene and Miller (1996) extended this work and built a causal model to predict achievement involving goal orientation, perceived ability, and cognitive engagement in terms of both depth and meaningfulness. The researchers found that possession of performance goals (as opposed to learning goals) tended to lead to shallow processing and thus low achievement, whereas possession of learning-related goals in combination with an adequately high self-perception of ability led to meaningful cognitive engagement and higher achievement. As work along these lines proceeds, more and more is learned about not just what individual elements contribute to a learner's motivation, but how those elements work together in instruction.

The concept of *interest* noted in the Miller et. al. study is part of the study of motivation (Deci, 1992). Two primary conceptions of interest have been studied: individual interest, which is a “relatively enduring preference for certain topics,” and situational interest, which is “an emotional state brought about by situational stimuli” (Schiefele, 1991, p. 302). Clearly, knowledge of the relationships among instructional provisions and both of these sorts of interest are germane to instructional designers. There is evidence, for example, that different topics and learning tasks evoke different patterns of importance between the two forms of interest. For example, tasks in arithmetic appear to be more highly dependent upon individual interest than tasks in reading and drawing, which may draw more heavily on situational interest factors (Boekaerts, 1987).

In recent years we have become increasingly cognizant of the need to be concerned about motivation in instruction. The area of motivation is rich with current research, which is helping us better understand motivation and how it can be influenced in

instruction. A somewhat different focus is the connection of basic knowledge about motivation to the design of instruction. We will devote the remainder of this chapter to a discussion of a system of principles for instructional design that can improve the motivational qualities of all of the instruction you design.

Keller's ARCS Model

In the late 1970s John Keller began work on motivation in instruction, which was an outgrowth of his interest in effort and its variability. He was frustrated that so much of the interest in psychology—especially research and theory that accounted for learner differences in achievement—was concentrated on differences in learner ability. To account for performance differences, Keller felt that it was necessary to understand and model the influence of effort and the contributors to effort. He determined that among the various constructs that might be applied to the problem of variation in effort, that of motivation was the most appropriate and useful (Keller, 1983, 1996).

By the mid-1980s, Keller had developed the ARCS Model for influencing learners' motivation to learn and for solving problems with learning motivation. ARCS is an acronym containing four major conditions for motivation: Attention, Relevance, Confidence, and Satisfaction. The four categories constitute, as a set, the conditions that Keller's research led him to presume are needed to “produce instruction that is interesting, meaningful, and appropriately challenging” (Keller, 1983, p. 395). Evaluation studies of application of the model have lent support to the validity of the basic constructs (Visser & Keller, 1990). A remaining issue is “optimality”: questions of how we can *best* enhance motivation. It seems clear that, although it is like most tools an imperfect one, use of the ARCS model can lead to improvements in the motivational qualities of instruction.

Each of the four major categories contains specific motivational strategy prescriptions for its attainment. In addition to the four categories, the ARCS Model also includes recommendations for what he called “motivational design”—in other words, how motivational concerns may be included in the instructional design process. We will describe each of the four motivation strategy categories and the motivation design process model, and we will look at how the ARCS Model may be applied by using suggestions from it within our expanded instructional events.

Four Motivation Strategy Categories

The following discussion of the four categories of motivating strategies borrows heavily from Keller’s description of them (1987, pp. 4–5). You may have noticed some of the following strategies in our introduction to many of the lessons in Chapters 8 through 15, particularly in the Deploy Attention and Arouse Interest and Motivation events. These strategies represent means to draw student attention to the material being learned and frequently involve very specific techniques of content presentation or treatment.

Attention Strategies

For learning to take place, the learner must *attend* to the material. In Chapter 1 we saw the fundamental requirement of attending reflected in the third criterion for high-quality instruction: appeal (in addition to the criteria of effectiveness and efficiency). The phenomenon of attending is one we have all experienced, and readers of this text can recognize the phenomenon subjectively in its absence. (Many students in schools and training agencies, however, cannot.) We have all looked up from reading an assignment and said to ourselves, “Oops, I’ve been reading for the past page or two but my mind was on something else. Let me see, where did I leave off?” These unfortunate incidents

illustrate that it is possible to go through the motions of studying or being in class without attending. And as we also know from our own experience, if you aren't attending, you're not learning.

Keller has described six kinds of attention strategies:

1. Incongruity and conflict
2. Concreteness
3. Variability
4. Humor
5. Inquiry
6. Participation

The first attention strategy is that of providing *incongruity and conflict*, such as introducing a fact that appears to contradict the student's experience or playing the devil's advocate in discussing an issue or current event of interest to the students. The second attention strategy is *concreteness*, in which visual presentations or concrete verbal presentations, such as anecdotes and biographies, attract the student's interest. In the third attention strategy, *variability*, the student's attention is caught or maintained by changes such as tone of voice, movements, instructional format, medium of instruction, layout and design of print material, and changes in interaction patterns, such as changing from student-instructor interaction to student-student interaction. Examples of the use of *humor*, the fourth attention strategy, include such techniques as using puns during redundant or necessarily repeated information presentation, making humorous analogies, and telling jokes in introductions and conclusions. The fifth attention strategy, *inquiry*, includes frequent engagement in problem-solving activities and providing opportunities for learners to select topics, projects, and assignments that can

capitalize on their interests. (See the description of inquiry and expository strategies in Chapter 7.) The sixth attention strategy is *participation*, which may involve such activities as games, role-playing, or simulations that involve active participation of the learners. (Participation strategies are described in the Practice events discussions in all of the strategy chapters, Chapters 8 through 15.)

From the various attention strategies, we see that not only is there a variety of strategies from which to select—both those provided as well as others you may be stimulated to devise given the example techniques—but also there is a need to consider attention needs throughout the entire instruction. It is relatively easy to get attention for a moment. What is needed, and much more difficult, is to direct that attention to the learning needs at hand and to maintain the attention at an optimal level, having students becoming neither bored nor over-stimulated. Novices in the field of instructional technology are occasionally so intrigued by what media can do to gain learners' attention that they overuse attention-gaining techniques so that learners' attention is directed more toward the device than to the content. The same effect can result from the gratuitous use of humor. Attention strategies should direct the learners' attention to the task.

Relevance Strategies

As a group, relevance strategies are intended to assist students in attaching value to the learning task and in deepening the internalization of that value. These strategies influence how the learning task is portrayed to the student, rather than having a direct impact on the content itself. Keller describes relevance strategies as including:

1. Experience
2. Present worth

3. Future usefulness
4. Need matching
5. Modeling
6. Choice

The first strategy used to assist in relevance, *experience*, suggests that instruction should (1) tell learners how new learning will use their existing skills, (2) use analogies to relate current learning to prior experience, and (3) be related to learner interests.

The second relevance strategy, called *present worth*, suggests that instruction explicitly state the current value of instruction, as opposed to stressing its value in the future. Imagining the current value of some learning task may be very difficult. It is sometimes productive to engage the students themselves in establishing immediate purpose.

Future usefulness, the third relevance strategy, suggests explicitly tying instructional goals to the learner's future activities and having learners participate in activities in which they relate the instruction to their own future goals. As you might predict, this strategy is often more useful with older students than younger students.

The fourth relevance strategy, called *need matching*, may be accomplished by capitalizing on the dynamics of achievement and risk taking, power, and affiliation. This involves activities that give students the opportunity to achieve, under conditions of moderate risk, activities that provide opportunities for students to exercise responsibility, authority, and influence, and activities that provide opportunities for cooperative interaction utilizing matching strategies.

The fifth relevance strategy is *modeling*. Some example activities that use this strategy include the use of alumni as guest lecturers, allowing students who finish self-paced work first to serve as deputy tutors, and modeling through teacher enthusiasm.

The sixth strategy that can enhance relevance is *choice*, which may be implemented by allowing students to employ different methods to pursue their work or allowing students a choice in how they organize their work.

Relevance strategies, as a group, represent various ways to help students see why what they are learning should be important to them. In our expanded instructional events, the examples that we have frequently employed in our discussions of two instructional strategies—Arouse Interest and Motivation, and Remotivate and Close—have been applications of the relevance strategies of Keller’s *experience*, *present worth*, and *future usefulness*. The strategies of *need matching*, *modeling*, and *choice* illustrate how different organizational strategies of instruction may influence motivation; the strategies produce motivational effects of *how* something is taught rather than producing effects of *what* is taught.

Confidence Strategies

The five confidence strategies are described as:

1. Learning requirements
2. Difficulty
3. Expectations
4. Attributions
5. Self-confidence

These strategies tend to focus on various aspects of learner performance in the learning process.

The first confidence strategy, *learning requirements*, emphasizes that students should clearly know what is being taught. Sample techniques include the incorporation of learning goals into the instructional materials, providing self-evaluation tools and skills, and providing explanation of the criteria used in evaluation.

The second strategy for improving confidence is *difficulty*. Keller suggests that the difficulty of learning materials should be sequenced in order of increasing difficulty, providing a continual but reasonable challenge. Instruction that builds on prior knowledge and instructs on prerequisites incorporates this principle.

Expectations strategies are suggestions for helping students acquire realistic and positive outlooks toward working with the material, through such techniques as letting students know the likelihood of success given different amounts of effort, teaching students to plan their work productively, and helping students set realistic goals for progress and achievement. Many of these skills are taught under the umbrella term *metacognition*. (See Chapter 13 for a discussion of this concept.)

The fourth confidence strategy, *attributions*, involves helping students to attribute their successes to their effort. In other words, it involves encouraging learners to have a more internal locus of control with regard to learning tasks. (See Chapter 4 for a discussion of internal/external locus of control.) Some techniques that teachers/instructors can use to promote internal locus of control are (1) ensuring that students know that their successes were the product of their effort rather than luck or other external factors (when that is the case), and

(2) encouraging students to “verbalize appropriate attributions for both successes and failures” (Keller, 1987, p. 5).

Self-confidence, the fifth confidence strategy, includes a variety of sample techniques to help students build self-confidence, including allowing students to experience increasing independence as they work at learning a skill; providing practice of skills under realistic conditions following initial learning under more sheltered, low-risk conditions; and helping students avoid the mental traps of perfectionism.

Confidence strategies are particularly helpful in preventing “blocks” that keep learners from engaging in practice and other necessary learning activities, such as maintaining student persistence in efforts associated with the learning task. People with different levels of confidence approach application exercises, practice, assignments, and tests very differently, and the confidence strategies represent powerful means of fostering the development of confidence and “form the impression that some level of success is possible if effort is exerted” (Keller, 1987, p. 5). The very careful and systematic design of instruction that promotes high levels of performance across ability levels tends to encourage learners’ self-confidence by leading to many successful learning experiences.

Satisfaction Strategies

There are five satisfaction strategies:

1. Natural consequences
2. Unexpected rewards
3. Positive outcomes
4. Avoidance of negative influences
5. Scheduling

In general, these strategies affect motivation through management of the consequences of student activity and learning.

The first satisfaction strategy is *natural consequences*, in which positive consequences of learning that are intrinsic to the accomplishment are maximized, such as letting students use their skills in realistic settings as soon as possible and allowing students who have mastered a task to help students who have not yet finished.

The second strategy to enhance satisfaction, *unexpected rewards*, offsets boring tasks with extrinsic rewards that the learner can anticipate ahead of time; it also enhances tasks that are intrinsically interesting by providing unexpected, non-contingent rewards. Maintaining effort during the performance of boring tasks can be made easier by the expectation of reward. With a task that is interesting, knowledge that an external reward is coming will not be particularly motivating. But an unexpected reward can surprise and delight a person who is working on a pleasant task without distracting him from that task.

The third satisfaction strategy, *positive outcomes*, is illustrated by such instruction-supplied actions as verbal praise, personal attention, helpful feedback, and motivating feedback (praise) immediately following task performance.

The fourth satisfaction strategy, *negative influences*, illustrates the need to avoid the negative. This involves avoiding the use of threats, the use of surveillance practices (as opposed to positive attention), and external performance evaluation when student self-evaluation is possible.

Scheduling, the fifth satisfaction strategy, refers to the scheduling of reinforcements, such as scheduling frequent reinforcement when learners are new at learning a task and intermittent reinforcement as they become more experienced. The overall schedule of

reinforcement should vary, in terms of both interval and quantity. For example, in the early phases of an employee safety training program, particular attention should be paid to providing frequent benefits and recognition to employees who participate in the program. As the program proceeds, rewards should not become routine or predictable but be awarded with some element of surprise. The most powerful reinforcement schedule (as anyone who has observed people playing slot machines knows) is a variable schedule, or random reinforcement pattern.

In general, the satisfaction strategies operationalize Thorndike's Law of Effect, which holds that if a stimulus is followed by a response that is followed by a satisfier, then the stimulus-response connection will be strengthened. A variety of techniques for providing extrinsic reward and intrinsic satisfactions have been presented. When a task is intrinsically satisfying, extrinsic reward techniques can actually be demotivating, so care must be employed in the use of these techniques. The issue of the relationship of extrinsic rewards and intrinsic motivation is complex. For example, Cameron and Pierce (1994, 1996) found in a meta-analysis of research on rewards and intrinsic motivation that rewards decrease intrinsic motivation only under a specific set of circumstances (i.e., when rewards are offered regardless of task performance). A summarizing statement regarding success strategies that appears to remain true is this: when properly selected and used, success-related techniques can be very powerful.

The Motivational Design Process Model

In addition to the four categories of motivational strategies, Keller's ARCS Model also contains a process model for assisting designers in incorporating motivation strategies into instruction. Figure W-3.1 presents this model alongside our own Instructional Design

Process Model so that you can see how the two models coincide. The model comprises four phases: Define, Design, Develop, and Evaluate. The simplicity of structure and choice of commonly employed phases make its recommendations easy to fit within whatever overall design model the designer is using.

<i>Analysis</i>	<i>Define (motivation issues)</i>
Learning Environment	Classify (motivational) Problem
Learners	Analyze Audience Motivation
Learning Task	Prepare Motivational Objectives
<i>Instructional Strategy</i>	<i>Design (of motivation)</i>
Organizational Strategy	Generate Potential Strategies
Delivery Strategy	
Management Strategy	Select (motivational) Strategies
	<i>Develop (motivation elements)</i>
Write and Produce Instruction	Prepare Motivational Elements
	Integrate with Instruction
<i>Evaluation</i>	<i>Evaluate</i>
Assessment Instruments	Developmental Tryout
Formative Evaluation	(of motivational elements)
Revision	Assess Motivational Outcomes

Figure W-3.1, The Motivational Design Model in Context of the Instructional Design Process Model

The ARCS Define phase dovetails well with the Analysis phase of our model, particularly at the steps of Learning Environment and Learners. Motivation problems can run the gamut from the need to increase the relevance of instruction for students who are generally cooperative and interested to the need to establish attention and expectancies of success for an essentially indifferent or even hostile population of learners. In the Define phase, we determine if the motivational problem is one that is amenable to solution

through the tools offered by the ARCS model, and if so, we proceed in analysis of audience and objectives.

In the first step, Classify Problem, we determine if the motivational problem at hand is within the range of problems that the ARCS model can reasonably be expected to address. The example of the sort of motivational problem to which the ARCS model was not intended to be applied are problems involving individual learners' personality or emotional disorders. Keller notes that the ARCS model is not a behavior change model, suggesting that its use is not a substitute for counseling or psychotherapy. The activities of the Learning Environment step of our model coincide well with the requirements of this step.

In the second step, Analyze Audience Motivation, we look at the motivation of the particular students or the target audience being taught. The designer should attempt to find out what the general level of motivation is for learners upon entry and what particular audience interests and needs may exist that can be built on to assist the extrinsic appeal of the instruction. The four categories of motivation strategies—attention, relevance, confidence, and satisfaction—may be used as a framework for this analysis. The analysis can take place as a natural part of the Learners step of our design model.

In the third step, Prepare Motivational Objectives, we use knowledge gained from the first two steps of the Motivational Design model (along with other knowledge from the Analysis phase of our model) to develop specific objectives for motivation. Motivation objectives are like instructional objectives in that they deal with outcomes in the learner and need to be expressed in performance terms. An example motivation objective would

be “By the end of the introduction to the lesson, each student will be able to describe two tangible benefits of learning to solder electrical circuit components.” Two other examples are “Within the practice phase of instruction, each student will persist in attempting exercises of increasing difficulty to the point of completion of all prescribed exercises” and “When beginning the final project for the course, each student will express confidence in being able to successfully complete the final project given sufficient effort.” The preparation of these motivational objectives can take place during the Learning Task step of our design model, perhaps at the end of it so that the learning task objectives are known and stated before the development of motivational objectives.

During the ARCS Design phase, we determine the particular motivational strategies that will be employed. Two steps complete this phase. These steps fit well with other activities in our own model’s Instructional Strategy phase.

The first step is Generate Potential Strategies, in which motivation strategy options are brainstormed to develop an extensive set of possibilities from which to choose. This step can be done during the Instructional Strategy phase of our model (specifically, in the Determine Organizational Strategy step).

The second step is Select (motivational) Strategies, in which the list of options is screened against the criteria of time required, fit with instructional objectives, cost to develop in terms of time and money, fit with learner characteristics, and compatibility with other aspects of instructional design and delivery. A good sequence within our model would be to perform these tasks during the Determine Management Strategy step, just prior to Write and Produce Instruction.

During the ARCS Develop phase, the plans and materials for the motivation are created. If instructional materials have already been created, this phase would require some adjustment and adaptation of the instructional materials, but it seems more ideal if plans and materials for motivation are developed alongside and integrated with instructional materials. The two steps in this phase, Prepare Motivational Elements and Integrate with Instruction, should be performed during our Write and Produce Instruction step.

The ARCS Evaluate phase includes two steps that fit well within our Evaluation phase. First, the Developmental Tryout of motivational materials and procedures should be conducted during our Conduct Formative Evaluation and Revise Instruction steps, because the process is the same for motivational materials as it is for the rest of the instruction. The Assess Motivational Outcomes step would be a product of the conclusion of our Conduct Formative Evaluation step, in which field trials establish, or “validate,” the revised instruction.

Promoting Interest and Motivation

Introduction

To assist deploying attention to the lesson, Keller’s attention strategies of *incongruity* and *humor* contain excellent ways to begin a lesson in a motivating way, potentially stimulating curiosity and drawing attention to the material. These strategies are good examples of attention “grabbers” that may at the same time clearly relate to the topic at hand.

In establishing instructional purpose, the confidence strategies of *learning requirements* and *expectations* may be used to contribute to learner confidence while establishing the learning objective. These strategies suggest that if instruction contains

clearly stated and appealing goals with clear criteria for evaluation, the learner's confidence in learning may be enhanced.

For arousing interest and motivation, the relevance strategies of *experience*, *present worth*, and *future usefulness* will be most germane at this point in the instruction. These are strategies that assist the learner in seeing why the knowledge or skill being studied will be helpful.

Within the preview of the lesson, as before, the confidence strategies of *learning requirements* and *expectations* may also be used here to assist the motivational qualities of the lesson preview as the instructional purpose is elaborated.

Body

Processing Information and Examples

To enhance motivation during the events of recalling relevant prior knowledge, processing information and examples, focusing attention, and employing learning strategies, motivational strategies of attention and relevance will be the most helpful. For example, attention strategies of *concreteness* and *variability* illustrate techniques to enhance the interest qualities of presentations, and *inquiry* and *participation* are attention strategies that involve non-expository forms of instructional delivery that are intrinsically interesting. The relevance strategies of *need matching*, *modeling*, and *choice* likewise address how material may be brought into contact with learners in ways that compel interest and involvement.

Practice and Feedback

To enhance motivation during practice and feedback, there are many different motivational strategies. Key strategies are the following: In the relevance category, *need matching* strategies capitalize on needs for achievement, power, and affiliation; in the

confidence category, the techniques of *difficulty* management provide continual but reasonable challenge, *attribution* techniques assist students to credit effort rather than luck for success, and *self-confidence* techniques use independence and risk management; and all of the strategies within the satisfaction category are useful—*natural consequences* of accomplishment, *unexpected rewards* from task completion, provision of *positive outcomes* for work and task accomplishment, avoiding *negative influences* such as threats, and *scheduling* of reinforcement.

Learning Strategies

Learners can be taught to employ many of the strategies themselves to control and promote their own motivation and interest. Indeed, in the spirit of our promoting generative strategies when possible, we believe that the gradual handing over of these strategies to learners is a very important instructional goal.

Conclusion

A similar pattern of use of motivational strategies is appropriate for use in the conclusion as well as the introduction. Attention strategies, confidence strategies, and relevance strategies will be useful in the conclusion in the same way that they were in the introduction. However, there will be a shift in tense—from future-tense emphasis (“Why should I learn this?”) to a past-tense emphasis (“Now that I know it, how can I use it?”).

Assessment

One technique within the *need matching* strategy has particular relevance to assessment: to provide opportunities to achieve excellence under conditions of moderate risk. Two techniques from the satisfaction category may also be applicable to assessment activities. First, avoiding external performance evaluations by helping the students to evaluate their own work is a motivational technique that should be considered in balance with needs for

assessment information, which may or may not be possible to acquire without external evaluation. Second, *natural consequences* techniques may be used at the end of assessment. These techniques capitalize on learners' completion of assessment. If learners have achieved mastery, they may be allowed to put their new knowledge to use as soon as possible or to help others learn the skill.

Exercises

1. Following are lesson features that incorporate motivational strategies. Determine the strategy category or categories—attention (A), relevance (R), confidence (C), or satisfaction (S)—that the lesson exemplifies.
 - a. A computer screen shows animated images of planes flying toward each other at the same altitude. Before they collide, the planes take separate routes with different altitudes, one higher than the other.
 - b. The lesson begins with the professor's personal story regarding an embarrassing situation resulting from his lack of knowledge of the content that will be taught in the lesson.
 - c. When the teacher returns a good paper to a student, she says, "Good work. I can see that you worked hard on this paper!"
 - d. The lesson uses a mastery plan, and students are able to retake alternate versions of the final exam until they reach an established criterion.
 - e. At the beginning of a lesson on "drafting" in competition bicycle riding, students view a video demonstration of the skill. Then the instructor replays the tape and points out the critical features of good technique.

- f. In a computer program, when a learner has correctly answered ten questions on multiplication facts, she is allowed to play a computer game for three minutes.
 - g. A parent, after teaching a child to set a place setting, goes into the other room while the child sets the other places, rather than “hanging over the child’s shoulder.”
 - h. The instruction in a physics course relates Bernoulli’s principle to students’ experiences at a swim park.
2. Using the extended example contribution for this chapter (see Extended Example in these Learning Resources), find and describe the applications of the ARCS Model Motivation Strategies within it.

Summary

In this chapter, we looked at how to promote motivation through instructional design. We described Keller’s ARCS Model as an excellent guide for designing for motivation. We looked at the four major components of the model and the categories under which specific motivation strategies are classified: attention strategies, relevance strategies, confidence strategies, and satisfaction strategies. We discussed the Motivation Design Process Model, which is also part of the ARCS Model, and saw how it fit within our more general Instructional Design Process model. Finally, we looked at how motivation strategies can be used within the framework of the expanded instructional events.

Readings and References

- Berlyne, D. (1966). Curiosity and exploration. *Science*, *153*, 25–33.
- Boekaerts, M. (1987). Situation-specific judgments of a learning task vs. overall measures of motivational orientation. In E. deCorte, H. Lodewijks, R. Parmentier, & P. Span (Eds.), *Learning and instruction: European research in an international context, Vol. 1* (pp. 169–179). Leuven, Belgium: Leuven University Press.
- Cameron, J., & Pierce, W. D. (1994). Reinforcement, reward, and intrinsic motivation: A meta-analysis. *Review of Educational Research*, *64*, 363, 423.
- Cameron, J., & Pierce, W. D. (1996). The debate about rewards and intrinsic motivation: Protests and accusations do not alter the results. *Review of Educational Research*, *66*(1), 39–51.
- Csikszentmihalyi, M. (1993). *The evolving self: A psychology for the third millennium*. New York: HarperCollins.
- Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (Eds.). (1988). *Optimal experience*. Cambridge, MA: Cambridge University Press.
- deCharms, R. (1976). *Enhancing motivation*. New York: Irvington.
- Deci, E. L. (1975). *Intrinsic motivation*. New York: Plenum.
- Deci, E. L. (1992). The relation of interest to the motivation of behavior: A self-determination theory perspective. In K. A. Renninger, S. Hidi, & A. Krapp (Eds.), *The role of interest in learning and development*. Hillsdale, NJ: Erlbaum.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist*, *41*, 1040–1048.

-
- Keller, J. M. (1983). Motivational design of instruction. In C. M. Reigeluth (Ed.), *Instructional-design theories and models* (pp. 383–434). Hillsdale, NJ: Erlbaum.
- Keller, J. M. (1987). Development and use of the ARCS model of motivational design. *Journal of Instructional Development*, 10(3), 2–11.
- Keller, J. M. (1996). Motivation in instruction design. In T. Pomp & D. P. Ely (Eds.), *International encyclopedia of educational technology* (2nd ed.) (pp. 169–173). Tarrytown, NY: Elsevier.
- Graham, S., & Weiner, B. (1996). Theories and principles of motivation. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 63–84). New York: Macmillan.
- Greene, B. A., & Miller, R. B. (1996). Influences on achievement: Goals, perceived ability, and cognitive engagement. *Contemporary Educational Psychology*, 21, 181–192.
- Miller, R., Behrens, J., Greene, B., & Newman, J. (1993). Goals and perceived ability: Impact on student valuing, self-regulation, and persistence. *Contemporary Educational Psychology* 8, 2–14.
- Rezabek, R. (1994). *The relationships among measures of intrinsic motivation, instructional design, and learning in computer-based instruction*. Unpublished doctoral dissertation, The University of Oklahoma, Norman, OK.
- Rollett, B. A. (1987). Effort avoidance and learning. In E. deCorte, H. Lodewijks, R. Parmentier, & P. Span (Eds.), *Learning and instruction: European research in an international context, Vol. 1* (pp. 147–157). Leuven, Belgium: Leuven University Press.

Schiefele, U. (1991). Interest, learning, and motivation. *Educational Psychologist*, 26(3 & 4), 299–323.

Rossett, A. (1981). Relevance revisited systematically. *Journal of Instructional Development*, 4(4), 9–13.

Ryan, R., Connell, J., & Deci, E. (1985). A motivational analysis of self-determination and self-regulation. In C. Ames and R. Ames (Eds.), *Research on motivation in education, Vol. 12: The Classroom* (pp. 13–51). New York: Academic Press.

Stipek, D. J. (1988). *Motivation to learn: From theory to practice*. Upper Saddle River, NJ: Prentice-Hall.

Stipek, D. J. (1996). Motivation and instruction. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 85–113). New York: Macmillan.

Visser, J., & Keller, J. M. (1990). The clinical use of motivational messages: an inquiry into the validity of the ARCS model of instructional design. *Instructional Science*, 19(6), 467–500.

White, R. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, 66, 297–333.