Chapter 2

Motivation

Markus Dresel and Nathan C. Hall

2.1. Students in Focus

It's Friday morning during a break between classes, and Grade 9 students Jane, Andy, and Kathryn are having a conversation.

Andy:	Have you done the math homework?
Kathryn:	Nope.
Jane:	Yes I did!
Andy to Jane:	Of course you did.
Jane to Andy:	Well, I really want to understand math [mastery goal orientation]. It just interests me, and I actually enjoy doing my math homework [interest, intrinsic motivation].
Kathryn to Jane:	Can I copy your work? I'm just not good at math [ability self-concept].
Andy:	The only time I study is right before a test, just so I don't fail [extrinsic motivation, performance avoidance goal orientation]
Jane to Andy:	Doesn't that backfire sometimes?
Andy (grinning) to Jane:	It has worked so far for me. I always manage to get a D or a better [expectancy for success].
Kathryn to Andy:	If I was as good at math as you are, I would try harder.
Andy to Kathryn:	Just because the teacher says math is important [controlled extrinsic motivation], it doesn't mean it's true. You can make a lot of money without being good at math.

Jane to Kathryn:	But if doing well in math is important to you, why don't you try to understand it better by spending more time practicing [mastery goal orientation]?
Kathryn to Jane:	Because I already know what will happen. Even if I try my best to read the questions and understand something, I just don't manage to learn it [expectancy for success]. No matter what I do, I can't improve in math [helplessness]. I only do as much as necessary, so that nobody notices that I don't know anything [performance avoidance goal orientation].
Jane to Kathryn:	I feel the same way about doing my French homework. But for that class, the teacher is really bad which makes it hard to learn anything [external causal attribution].
Andy to Jane:	I don't know about the teacher; all I know is I really want to go on the exchange trip to France next year, so I need a good grade [autonomous extrinsic motivation]. That's why I'm working hard in the class; I got a B on the last test only because I studied like crazy for weeks before [internal causal attribution to effort].
Kathryn to Andy:	You don't do anything unless it involves getting out of class [extrinsic motivation]!
Andy (smiling) to Kathryn:	Exactly!

2.2. Structure and Effects of Motivation in Students

The conversation above offers an opportunity to address several aspects of student motivation ranging from intrinsic versus extrinsic motivation, to causal attributions for success and failure experiences. In this section, we will address core motivational concepts in terms of their mechanisms and effects as outlined in psychological theories and research, with a particular focus on those of specific relevance to learning and achievement in educational settings.

2.2.1. What is Motivation?

Many undergraduates are familiar with the situation of partying with friends when they should be studying for an exam. So how do we get from socializing to studying? First, we need to "get into gear" — to *move* ourselves from the bar to the books (Latin: *movere*). The term *motivation* is derived from this verb and represents the internal forces that move us in a certain direction. It is not possible to "see"

motivation; we can only assume it based on certain indicators in our behavior, cognition, and emotional experiences. Therefore, motivation is a hypothetical construct. For example, one could infer that a student was motivated to prepare for an exam after observing them leaving a party early in order to finish studying at the library.

The definition of motivation provided below reflects our current understanding of the concept as informed by recent theories and research in this domain (e.g., Schunk, Pintrich, & Meece, 2008).

Definition

Motivation refers to the processes underlying the initiation, control, maintenance, and evaluation of goal-oriented behaviors.

This current understanding of motivation is characterized by the following principles:

- Motivation refers to psychological mechanisms that occur throughout the entire process of pursuing one's goals. At first, this process involves the identification and selection of viable courses of action for achieving one's objectives. The focus of early research was limited to this aspect of motivation, but this focus has widened in recent decades to provide a more comprehensive analysis of how people plan, execute, and evaluate their selected action plans, thus addressing the entire process of goal pursuit.
- The current state of one's motivation to pursue a particular course of action is dependent on the characteristics of the individual as well as of the specific situation. This understanding of motivation has developed from earlier conceptualizations of motivation as simply a personality trait that is invariant across situations. More specifically, this principle acknowledges that although there are a number of relatively stable motivational tendencies and beliefs that can differentiate one individual from the next (e.g., interest in a certain subject), motivation can vary significantly depending on the type of situation or the specific goal in question. Theoretically, these stable motivational tendencies and beliefs are separate from one's current motivation to engage in a specific action and understood as personal factors that influence one's current motivation by interacting with specific characteristics of the situation.
- Cognitive processes are central to motivation. Among other things, these include goals as thinking ahead to desired end states, evaluations of one's options for action, as well as expectations about whether a desired end state can be achieved through direct action which, not surprisingly, are related to the estimation of one's abilities.
- Also important are social processes that contribute to the development of motivational tendencies and beliefs. A notable example of this is social comparison, particularly when one's own achievement is compared to the achievement of others (e.g., competition). Another example involves what is referred to as

impression management – goals aimed at ensuring one leaves a positive impression on others (e.g., with regard to ability; Schlenker, 1980).

One influential model in which the contemporary interpretation of motivation is reflected is the *Rubicon model of action phases* (e.g., Heckhausen & Gollwitzer, 1987; for an overview see Achtziger & Gollwitzer, 2008) depicted in Figure 2.1.

The Rubicon model addresses human actions from a chronological perspective and specifies four phases in the action process: (1) in the *predecisional phase*, people formulate subjective evaluations about how significant they consider the attainment of a desired end state to be, or conversely, the avoidance of an undesirable end state (*value component*, referring to the *desirability* of end states). They also form expectations about whether that end state can be realized or the undesirable state can be avoided (*expectancy component*, referring to the *feasibility* of attaining that state). Once it has been determined that the combination of these values and expectations is sufficiently positive, an action goal is formulated. This decisive point in the action process is, according to the authors, comparable with crossing of the Rubicon River by Julius Caesar and his troops, which precipitated the irrevocable entry into the Roman Civil War. (2) In the *preactional phase*, preparing oneself to engage in the behaviors required to achieve the selected goal is of primary importance with respect to planning the implementation of the action, waiting for (or inducing) a timely opportunity to initiate the action, as well as protecting one's attention and motivation in the face of competing goals. (3) In the *action phase*, the specific action process leading to the intended goal is initiated. In this phase, the regulation of effort and persistence, as well the efforts to guard against disruptive influences, are the most significant processes (self-control). According to this model, successful completion of this phase requires that the selected action process is not terminated prematurely, and that alternative courses of action are not undertaken before evaluating the success of the chosen action plan. (4) In the *postactional phase*, the process of striving for the goal, and outcome of that process, are evaluated and conclusions for future goal striving endeavors are made. Of particular interest in this

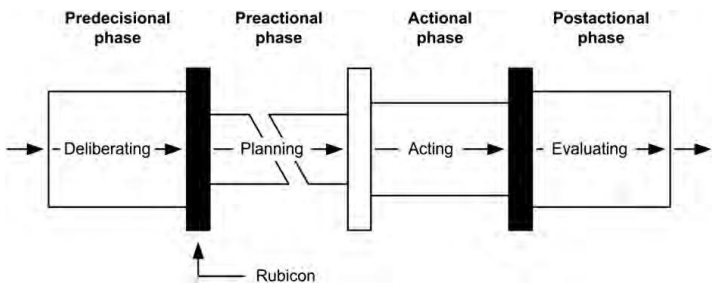


Figure 2.1: Rubicon model of action phases (e.g., Heckhausen & Gollwitzer, 1987).

phase is what the individual perceives the causes for success or failure to achieve one's goal to be.

Consider for a moment the effects that motivation and its two components (expectancy and value components) can have on action processes and their results. Try to take all four phases of the action process into consideration.

2.2.2. Effects of Motivation on the Learning Process

The level and type of motivation people have to undertake specific courses of action can have a variety of effects on the scope, quality, and results of these actions. In an educational context, the following consequences of higher levels of motivation for learning and achievement are most evident:

- Initiation of actions for accomplishing learning or achievement goals
- Planning appropriate learning activities and setting suitable subgoals
- Creating favorable conditions and acquiring appropriate resources in support of learning activities (e.g., help-seeking)
- Selecting challenging levels of difficulty that ensure optimal learning progress (not too demanding nor too easy)
- Lower tendency to procrastinate
- Sufficient quantity of effort (e.g., time invested)
- Endurance, particularly in the face of difficulties (persistence)
- High quality of efforts in terms of applying effective types of learning strategies (e.g., deep-level strategies) and appropriate forms of self-regulation (monitoring, adjusting strategies in the event of difficulties)
- Limited thoughts that are irrelevant to one's course of action (e.g., worry)
- Experiencing emotions that are conducive to one's course of action (e.g., enjoyment of learning)
- Learning progress and high-quality performance

Given the various positive consequences of greater learning and achievement motivation, the various components thereof are considered to be important predictors of scholastic achievement, alongside and in interaction with cognitive factors (e.g., intelligence, prior knowledge) that are ascribed a great deal of significance with regard to the quality and outcomes of learning in educational settings (Helmke & Schrader, 2001). Furthermore, improving learning and achievement motivation also represents an essential educational goal given the far-reaching benefits of optimal motivation levels beyond improved academic performance. Such efforts are particularly important for meeting the educational demands of modern knowledge-based societies that increasingly require individuals to continuously acquire new knowledge and adapt existing knowledge long after the completion of formal education (*lifelong learning*). To this end, ensuring robust levels of learning

motivation is considered a critical precondition for effective learning progress and educational success (Lüftenegger et al., 2012).

2.2.3. Theoretical Model of Motivation for Learning and Achievement

The model outlined in Figure 2.2 depicts the interplay among the various components, conditions, and consequences of motivation in individuals throughout the learning and achievement-striving process. A brief overview of the macro-level structure of the model is provided below, with important aspects of specific theoretical components, and their interactions, discussed in more detail in the sections that follow.

One's current motivation to engage in certain actions related to learning or performance in a specific learning or instructional situation (Block A) lies at the center of the theoretical framework. As noted above, this motivation is assumed to result from personal evaluations of the desirability (value component) and expectations regarding the feasibility (expectancy component) of the options for action. These two situational evaluations, and the resulting current motivation, depend on enduring characteristics of the person, as well as characteristics of the specific learning environment in which one is situated. Characteristics of the person include a number of relatively stable motivational tendencies and beliefs (Block B) such as interests, goal orientations (more value related), and assumptions about one's personal capabilities (more expectancy related). Characteristics of the learning environment (Block C) include relatively stable social–environmental factors, such as the expectations and values of significant others (teachers, parents, peers) and contextual elements such as how learning is evaluated (e.g., social competition, individual gains). Likewise, characteristics of the specific learning or instructional situation need to be considered, such as actual opportunities and demands to engage in specific courses of action, the interestingness and difficulty of the learning topic and actions, as well as the type of learner support and feedback provided.

The middle column in the model refers more specifically to actions taken by the individual in a specific learning situation as adapted from the Rubicon model of action phases: Based on one's current motivation (predecisional phase — Block A), certain actions will be planned, initiated, and executed toward realizing a chosen goal (preactional and actional phases — Block D). In this section is where most of positive consequences of greater motivation as outlined above would be observed. Following these action phases is the subsequent evaluation of these learning-related behaviors, the result of which can be deemed a success or failure depending on quality benchmarks. An explicit and/or implicit causal analysis in which the individual determines likely contributors to the learning or achievement outcome is also located in this section (postactional phase — Block E). This evaluation is dependent, on the one hand, on the person's motivational tendencies and beliefs, such as viewing a success experience as due to luck based on a low estimation of personal ability (B → E). On the other hand, environmental characteristics may also influence the way in which one evaluates learning outcomes (C → E), such as ability-related feedback provided by teachers or external standards.

Finally, this model is recursive in suggesting that evaluations of learning or achievement outcomes (e.g., causal attributions) can feed directly back into personal evaluations of the feasibility and desirability of one's potential end states, as well as current motivation to engage in similar courses of actions (E→A). Recurring evaluations are further assumed to possibly result in changes to one's more general motivational beliefs (E→B), for instance, when interest in a subject is reduced because high achievement cannot be readily attributed to one's personal ability, and therefore cannot bolster one's perceived competence. Similarly, the way in which a course of action is evaluated could result in modifications to one's learning environment (E→C), such as parents who upwardly adjust their beliefs about a child's ability after a success, or teachers who downwardly adjust lesson complexity due to difficulties experienced by their students. Overall, these feedback loops suggest that people's motivational tendencies, as well as their social environment, can change (and stabilize) over time as part of a recurring, cyclical interaction. At the same time, aspects of the learning environment can also adapt to the learner as a consequence of this reciprocity.

2.2.4. Situation-Specific Expectancies and Values

As previously mentioned, one's current motivation in a given educational setting is hypothesized to be primarily determined by subjective expectations of the feasibility as well as desirability of one's potential end states (Block A in Figure 2.2). The undisputed significance of these two situation-specific motivational components is reflected in a large number of long-established and contemporary *expectancy-value theories of motivation*. A basic theoretical element of these models is that motivation is a result of an interaction between expectancy and value. Thus, one's level of the motivation is assumed to increase as a consequence of higher levels of one or both of these components, with certain minimum thresholds for each needing to be met before describing an individual as "motivated." Conversely, should an individual not find a course of action to be attractive, or decide that a specific required action cannot be successfully executed even with great effort, they will tend to not be motivated to pursue this course of action. A well-established model of motivation in the context of scholastic learning and achievement behavior is the expectancy-value model developed by Eccles (1983). It not only considers the antecedents of one's current motivation with respect to situation-specific expectations and values, it also addresses the manner in which these variables depend on more stable motivational tendencies and beliefs, previous learning and achievement experiences, as well as the social environment. Given the consistency of these assumptions with the theoretical framework presented above, this model is further explained in the subsequent sections.

Value components. Concerning the ways in which students subjectively assign value to specific tasks and corresponding outcomes (also commonly referred to as assigning "valence"), research in motivational psychology has developed a few useful distinctions in this regard. Probably the most significant differentiation is that

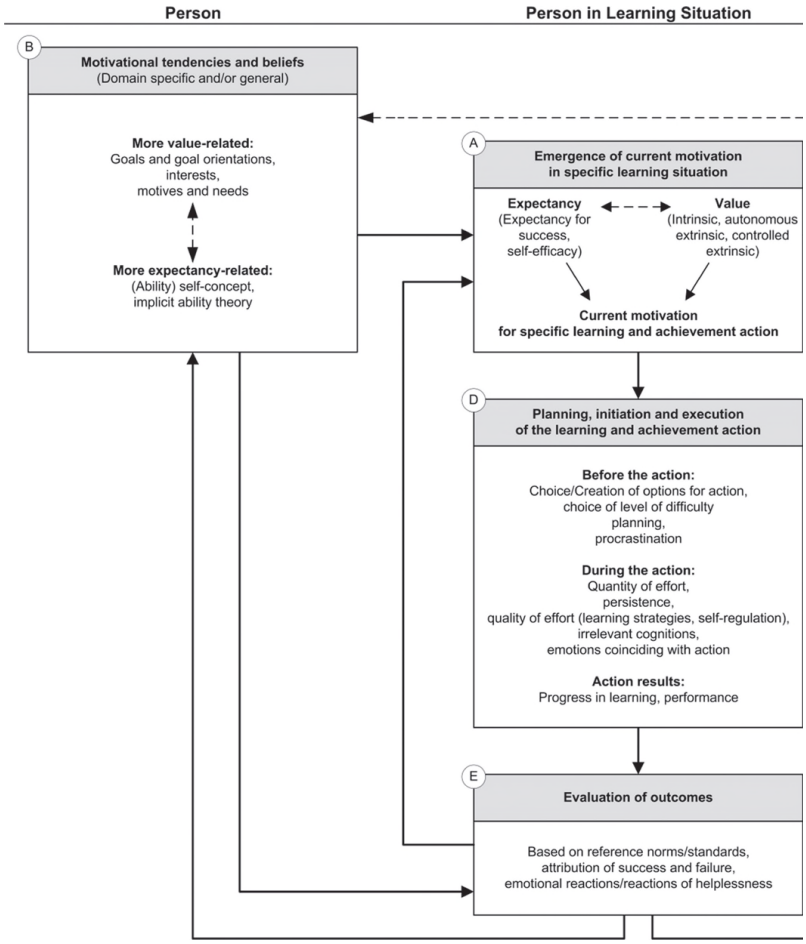
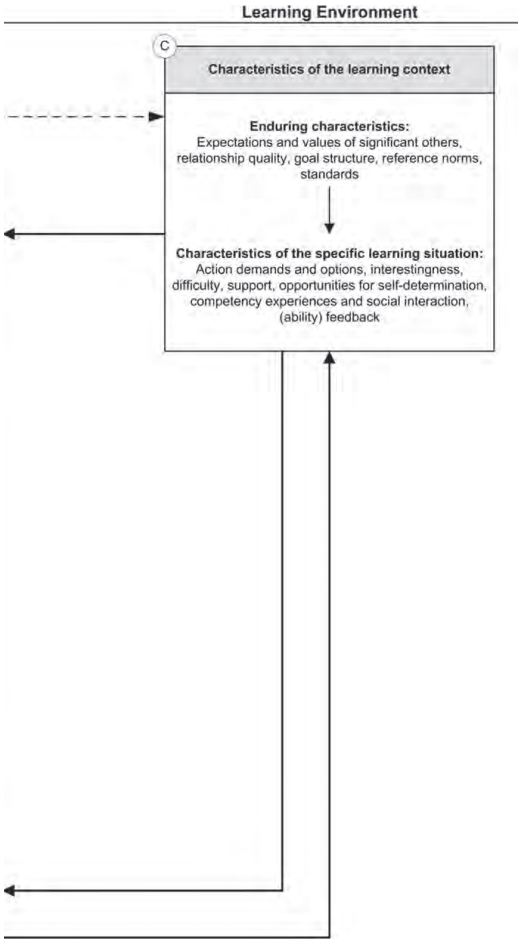


Figure 2.2: Conceptual model of learning and achievement motivation.


Learning Environment
C
Characteristics of the learning context
Enduring characteristics:
Expectations and values of significant others, relationship quality, goal structure, reference norms, standards
Characteristics of the specific learning situation:
Action demands and options, interestingness, difficulty, support, opportunities for self-determination, competency experiences and social interaction, (ability) feedback

made between intrinsic motivation and various forms of extrinsic motivation as outlined by Deci and Ryan (1985) in their work on *self-determination theory* (see also Ryan & Deci, 2000) as well as in the model developed by Eccles (1983).

Definition

Intrinsic motivation denotes the willingness of an individual to execute an action because they find it satisfying or rewarding; the activity is experienced as positive in itself (activity incentives) or the topic is engaging (interest). *Extrinsic motivation* is characterized by value not being found in the activity itself, but rather in the consequences of the activity. Distinctions are made here between *autonomous (self-determined) extrinsic motivation*, in which value originates from external factors and, to a greater extent, from within the person executing the action, and *controlled (nonself-determined) extrinsic motivation*, whereby value is determined primarily by a reward structure that is outside the individual.

For intrinsic motivation (*intrinsic value* according to Eccles, 1983), the value is located within the action itself. This is a self-determined form of motivation in which individuals complete activities autonomously and independent of external reinforcements (e.g., enjoyment experienced while performing physics experiments due to interest in electromagnetism). Generally, we find uniformly positive effects of intrinsic motivation on various aspects of self-regulated learning and performance quality. Extrinsic motivation, however, is much more diverse, more complex with regard to its effects, and is far more common in the academic context than intrinsic motivation. To further clarify the different forms of extrinsic motivation, Deci and Ryan (1985) attempt to classify them according to the degree to which they are associated with one's personal values and goals. Deci and Ryan refer to autonomous (self-determined) extrinsic motivation when the results of the learning process (extrinsic value of the outcome) are personally important to the individual. This type of motivation is also represented when the outcome is valued because of how useful it is for achieving other personal goals (*utility value* in Eccles, 1983), for example, if a student studies intensively for her math exams because of her personal goal of one day becoming an economist. Similarly, autonomous extrinsic motivation is assumed if success is important for an individual's self-concept and identity (*attainment value* or *importance* in Eccles, 1983), for example, if a student performs exceptionally well at an athletics competition because he defines himself as an athlete. In contrast, less autonomous motivation is involved when the value of one's actions or outcomes is due primarily to external rewards, regulations, or norms (e.g., when a student studies for English class to avoid punishment or a guilty conscience). Figure 2.3 illustrates these types of motivation and also incorporates more specific differentiations as described by Ryan and Deci (2000).

Empirical studies have shown that autonomous forms of extrinsic motivation can have positive effects, similar to those seen with intrinsic motivation, and that long-term negative effects for the learning process result primarily from controlled forms of extrinsic motivation (e.g., due to negative effects on learning strategy use;

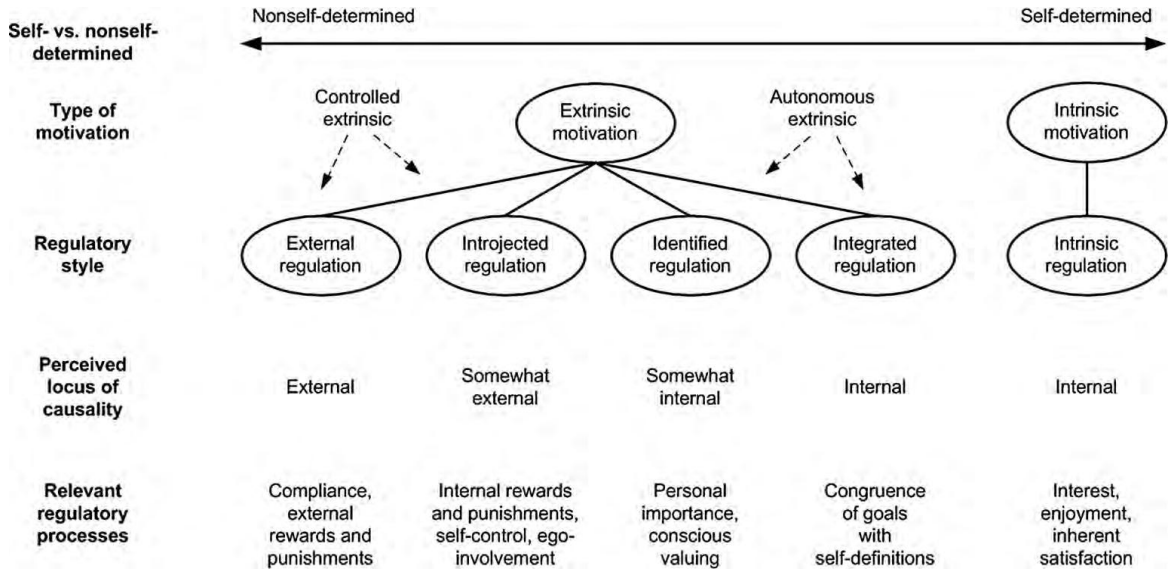


Figure 2.3: Continuum of self-determined motivation (adapted from Ryan & Deci, 2000).

Ryan & Deci, 2000). However, externally controlled motivation can, in the short run, also have positive effects on learning and achievement behavior — namely when the learning activity or outcome is of little personal value to the learner otherwise. It is also important to acknowledge that intrinsic and extrinsic motivations are not mutually exclusive. For instance, adolescents can both be interested in the object of their learning activities as well as recognize that competence gains associated with the learning material may useful for later occupational opportunities. It should be noted here that the understanding of intrinsic and extrinsic motivation as a simple dichotomy is not sufficient to adequately capture students' motivation, and that a more differentiated consideration of extrinsic motivation, based on the specific degree of self-determination involved, is required to properly explain the effects of the values associated with various activities. Although studies have recently opted to not assess one type of extrinsic motivation proposed by Ryan and Deci (2000), namely "integrated" motivation (Vansteenkiste et al., 2009), the remaining three categories do highlight critical distinctions between people who are motivated to (a) avoid punishment or obtain rewards ("external"), (b) to avoid guilt or feel pride ("introjected"), or (c) to pursue their goal because they value both the learning process and the eventual outcome ("identified").

Think about an educational activity that requires a considerable investment of your time and energy to achieve it (e.g., studying to complete a university degree). Why do you do it? What are your main reasons for engaging in this activity? Take a moment to consider the roles that the various forms of intrinsic and extrinsic motivation described above play in keeping you motivated while pursuing this activity.

Expectancy components. If a student assumes they will do well on their next test in math class, this would be a typical example of high success expectancy in a learning and achievement context. Further, it can reasonably be assumed that the most important aspect of this student's expectations is their perceived probability that they can achieve this success through their own actions. On the other hand, these expectations will also depend on the student's beliefs about what would happen if they did not invest significant effort in the learning process — the probability that a successful result would be determined by external factors beyond the student's control. In order to distinguish between the overlapping effects of one's own actions and those of external forces on one's learning-related expectations, Heckhausen and Rheinberg (1980) differentiated among a variety of expectations individuals can hold while assessing a situation (Table 2.1; see also Rheinberg, Vollmeyer, & Rollett, 2000; Skinner, 1996). The first type of expectations is referred to as the *action–outcome expectancy* (the anticipated effect of personal actions), the second as *situation–outcome expectancy* (the impact of external factors), and a third type of expectancies as *outcome–consequence expectancy*, which refers to the learner's expectation that the outcome of the learning process will produce the desired consequences (e.g., in the social environment).

Definition

Expectancy for success refers to the subjective assessment, by an individual, of the probability of successfully completing a task.

The action–outcome expectation component is considered to be particularly significant for the motivation process. As a large number of empirical studies have already demonstrated, the expectation that one's own behavior will lead to positive outcomes has significant beneficial effects on the quality of learning processes and academic success (for a review, see Schunk et al., 2008).

Table 2.1: Three types of expectancies in the model developed by Heckhausen and Rheinberg (1980; see also Rheinberg et al., 2000).

Expectation type	Definition	Examples
Action–outcome expectancy	Assumed probability that the desired outcome can be obtained through one's own actions	1. "If I prepare intensively, the presentation I have to make next class will go well." 2. "I am capable of understanding the literature assigned for English class, and I know how to best complete the final writing assignment. For these reasons, I should get a good final grade in this class."
Situation–outcome expectancy	Assumed probability that the desired outcome is determined by the situation, regardless of actions taken by the individual	3. "If I do not invest much effort in this group project, other group members will take up the slack and we will succeed regardless of my contribution." 4. "Even if I don't study for the next English test, I will get a good mark because the teacher likes me."
Outcome–consequence expectancy	Assumed probability that the desired outcome will lead to desired consequences	5. "If we do a good presentation, the teacher will give us positive feedback and our classmates will be impressed." 6. "If I get a good mark on my English test, my parents will take me out to the movies."

The fundamental significance of action–outcome expectations is further supported by the number of similar constructs with differing labels. To start, this concept is quite similar to personal *control beliefs* as proposed by Rotter (1966, 1990), as well as *self-efficacy* from Bandura's social-cognitive theory (1977, 1997). However, Bandura further suggests that self-efficacy can be differentiated into beliefs about whether one can successfully execute a specific course of action (*efficacy expectation*) and about whether these actions will lead to the desired result (*outcome expectation*). This differentiation is depicted in the second example of action–outcome expectations provided in Table 2.1 in which the learner's belief in their ability to perform required actions is clearly linked to their expectation that this action will be effective (a similar distinction is made in the control beliefs model of Skinner, 1996). The assumption made by the student in this example – that they are capable of understanding course content effectively – corresponds to their efficacy expectation, whereas the assumption that a good understanding of the material will lead to a good grade on the upcoming test reflects their outcome expectation. Although this differentiation may appear at first glance to be somewhat contrived, it does have practical relevance. For example, it is commonly the case that a student can be acutely aware of which learning activities will lead to academic success, but not be confident in their ability to execute them effectively to improve their performance. Conversely, a student could also lack a firm understanding of what specific learning strategies would be effective for attaining a specific learning objective, despite being fully convinced that they are capable of successfully implementing them (see Chapter 3).

2.2.5. Motives and Needs

In addition to exploring situation-specific variables, a large proportion of the foundational research in the motivation domain, as well as related applications, has addressed comparatively *stable individual differences*. The following sections highlight this research as it relates to motivational tendencies and beliefs (Block B in Figure 2.2), starting with the more value-related tendencies in order to structure the discussion of stable motivational constructs in a way that replicates the historical development of motivation research (motives and needs followed by goal orientations and interest). In the sections that follow, two types of expectancy-related belief systems pertaining to the way in which learners view their personal competencies are presented (ability self-concept, implicit theories). It should be noted here that these motivational tendencies and beliefs cannot be associated explicitly with only one "side" of motivation — value versus expectancy — in that they also have reciprocal relationships with one another, and act in conjunction with each of these two components.

As highlighted at the outset of this chapter, it is clear that motivation is best understood as a process, one that is directed toward the learning-related course of action currently being pursued. What then is to be understood by the term *motive*, a word that is also frequently utilized in everyday language?

Definition

Motives (synonym: *needs*) are temporally stable preferences, that differ between individuals, for specific types of behavior and the subjective incentives associated with these behaviors, particularly the experience of emotional satisfaction (see McClelland, 1987).

Thus, motives can be understood as components of an individual's personality. That is, although motives are variable between persons (interindividual), they are seen to be relatively stable traits within a person (intraindividual). In this way, a motive can be differentiated from one's (current) motivation. The motivation associated with a specific course of action does depend on individual motives — albeit only to a certain extent, in that current motivation also integrates situational conditions. In recent decades, motivation research has been able to convincingly demonstrate that the effects of motives — conceptualized as noncognitive and domain-general in nature — are in fact mediated through a number of domain-specific cognitions.

Earlier work in motivational psychology was particularly focused on investigating different types of motives (cf. Murray, 1938) with need for achievement, need for affiliation, and need for power emerging as central motives or needs (Table 2.2). The following sections provide greater detail specifically concerning the achievement motive as it is traditionally afforded the greatest significance with respect to scholastic achievement behavior.

Table 2.2: Three central motives/needs.

Motive	Stable preference for	Subcomponents	Further reading
Need for achievement	Mastering difficult tasks, measuring against performance standards, overcoming difficulties, competition and surpassing others	Hope for success Fear of failure	Brunstein and Heckhausen (2008)
Need for affiliation	Belonging, making friends and starting relationships, cooperation, reciprocating kindness, maintaining friendships, loyalty, love	Hope for affiliation Fear of rejection	Sokolowski and Heckhausen (2008)
Need for power	Control over the social and physical environments, exercising influence over others or leading others	Hope for control Fear of being controlled	Schmalt and Heckhausen (2008)

Achievement motive (need for achievement). The achievement motive refers to one's ambition to accomplish a challenging task — a consistent psychological need that nonetheless varies between individuals (thus, an "individual difference" variable). This motive involves working as quickly as possible, overcoming obstacles, as well as other efforts required to attain a set performance standard or measure of quality. These quality standards can further evoke *hope for success* as well as *fear of failure*. These two concepts can be traced back to Atkinson (e.g., 1957) who conceptualized them as subcomponents of the achievement motive that are stable over time yet variable between individuals. First, hope for success is represented by an individual's expectation of being successful, and reflects a dispositional focus on wanting to feel pride in one's achievements. People who are hoping for success are characterized as being truly committed to completing the requisite performance tasks. This motivational process is therefore focused on approaching desired achievement outcomes. Second, fear of failure refers to the dispositional tendency in some individuals to instead focus on avoiding feelings of shame or blame should one's actions result in failure. In this case, the motivational process instead focuses on avoiding undesirable outcomes. Therefore the motivational "system" can, at a fundamental level, be described as consisting of two different foci that involve behaviors aimed at *approaching* desirable states and/or *avoiding* undesirable states. Approach and avoidance subcomponents have also been postulated for the other types of motives mentioned above (see Table 2.2).

A series of consequences in terms of behaviors and outcomes are associated with these different foci, and not only in the academic context, but in basically all spheres of life where some form of achievement can be demonstrated. One behavioral consequence that was often explored in early research in motivational psychology was choice of task difficulty. Frequently, persons with high hopes for success tended to choose moderately difficult tasks with a subjective probability rate of success that is close to 50% — the very same type of task that individuals with a strong fear of failure tended to avoid. Instead, learners who had high levels of fear were much more likely to choose tasks that were either too simple or too difficult for them. Why would hope for success and fear of failure predict such different choices in terms of the difficulty of learning tasks?

Behaviors involving the selection of tasks with respect to their difficulty can be explained with the *risk-taking model* developed by Atkinson (1957). According to this model, individuals select their tasks in accordance with the emotional incentive value of achieving success as well as the (subjective) probability of success. According to Atkinson, emotional incentives and perceived probabilities of success are inversely related: A simple task with a high probability of success should have a low level of incentive value in regards to how emotionally rewarding it is in that one would not be particularly proud if success occurs. On the other hand, a difficult task only achievable by a few would be considered to have high emotional incentive value given the personal and unique significance of a successful outcome. In order to formalize the assumption that one's current motivation is dependent on the subjective probability and the incentive value of success, and that both of these components must be sufficiently present to prompt subsequent actions, Atkinson suggested that

current motivation is a multiplicative combination of these components. Related to this assumption, Atkinson further proposed that motivation follows an inverted U-shaped function, which is at its maximum for tasks of moderate subjective difficulty and lowest for tasks that are extremely simple or exceptionally difficult. These assumptions are illustrated in Figure 2.4.

What does the difficulty level of a task have to do with hope for success and fear of failure? It became quickly evident that the proposed function of motivation applied mainly to individuals who were hoping to achieve academic success. For these learners, their current motivation level was highest for tasks with a probability of success of about 50%, which ensured that the learning process would be challenging and engaging yet afforded a good chance of eventual success. Accordingly, these types of learners tended to select moderately difficult learning tasks to complete. However, not everyone was motivated by these odds of success, particularly those who were focused on avoiding failure. More specifically, whereas hopeful individuals saw a 50% chance of success as an opportunity for their personal abilities and effort to pay off, fearful individuals instead focused on how failing on a task with such odds would make it embarrassingly clear to others that they lacked the ability to succeed. This is precisely what individuals who fear failure try to avoid, with their primary concern being that failure will undoubtedly be attributed to their lack of ability (see Section 2.2.9). For this reason, these types of learners tend to select simpler tasks with a higher probability of success and less risk of failure. However, these individuals were also likely to select excessively difficult tasks at which the

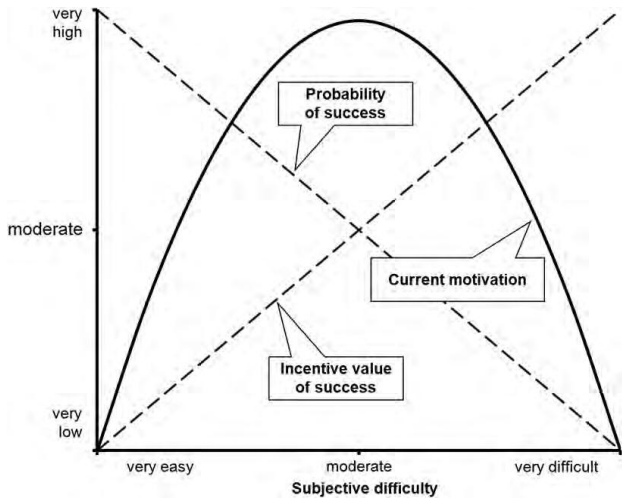


Figure 2.4: Choice of task difficulty in Atkinson's risk-taking model (1957).

majority of learners would also fail, thus avoiding attributions to a lack of personal ability if success did not occur.

Given substantial empirical evidence to confirm this kind of selection bias among those who suffer from fear of failure, it is clear that this pattern of results does not conform to the U-shaped function for motivation as originally postulated by Atkinson (1957). Instead, this pattern is opposite of his assertion in suggesting that some learners demonstrate minimal motivation with moderately difficult tasks, and maximal motivation when faced with extremely low or high task difficulty. Another limitation of the assumptions made by Atkinson concerns the restrictive definition of emotional incentive value of success in his model that specifically involves feelings of pride. Whereas it may be assumed that this specific facet of subjective value has an inverse relationship with the probability of success (e.g., less pride following the completion of easy tasks), subsequent empirical work shows this not to be the case for other components of value. For example, as other variables such as intrinsic value or utility value have been found to positively correspond with expectations for success (e.g., readily attainable goals tend to be more enjoyable to pursue), subjective value came to be understood as multifaceted in nature (see Section 2.2.4) and, for the most part, positively related to expectancy variables (e.g., Eccles & Wigfield, 1995). Furthermore, these findings resulted in less research emphasis in general on the strictly formalized function for optimal motivation as well as the assumed multiplicative relationship between expectancy and value proposed by Atkinson (1957).

Universal needs (Maslow; Deci & Ryan). In the context of universal human needs, the hierarchical model proposed by Maslow (1954) has gained widespread appeal (see Figure 2.5). Maslow worked under the assumption that not all basic needs are of equal importance and proposed a theoretical perspective involving a hierarchically ordered system of needs. A central assumption was that higher-order psychological needs, focused mainly on self-reflection and personal development, would not be given sufficient consideration as long as lower-order physical and social needs were not being met.

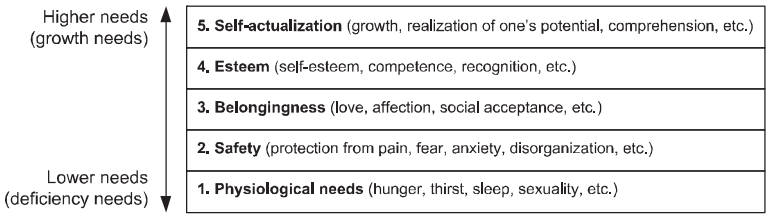


Figure 2.5: Maslow's (1954) hierarchy of needs (adapted from Schunk et al., 2008).

Upon close inspection of the model in Figure 2.5, it becomes obvious, however, that the strict hierarchy it assumes is not always plausible. For example, it could well be the case that while engaged in the learning process one may become hungry (level 1) yet nevertheless complete the learning task to satisfy higher-order needs for understanding and competence (levels 4 and 5). Csikszentmihalyi and Csikszentmihalyi (1988) have even described a state of full cognitive absorption in a task — referred to as *flow* — in which unsatisfied basic needs (e.g., hunger) are not even perceived by the individual. In addition, there are differences between individuals in the strengths of needs, as well as changes in the strengths of needs over time within an individual. Therefore, it is clear that the model can be criticized in terms of not only its strict hierarchical structure, but also interindividual and intraindividual differences that are unaccounted for. However, this model is important due to its emphasis on self-actualization and personal development which clearly encourages teachers and administers to design learning environments that address not only basic learning processes but also higher-order psychological needs of students. To be more precise, Maslow's model suggests that in addition to addressing basic physical needs, social belonging (affinity, acceptance), and personal safety (freedom from fear), the satisfaction of students' needs for self-esteem (recognition, competence) and to understand their social environment and optimize their potential (self-actualization) should be considered when designing lesson plans and school programs.

Deci and Ryan (1985) arrived at similar conclusions within the framework of their self-determination theory (see Section 2.2.4), and postulated that three fundamental needs must be fulfilled in order to facilitate intrinsic motivation and interest:

- the need for autonomy,
- the need for competence, and
- the need for relatedness.

Over the past 20 years, a number of studies have confirmed the assumption that classroom instruction is most effective in promoting motivation in students when these three basic needs are being met (for an overview, see Krapp, 2005). These findings also form the basis for motivational programs and instructional methods to encourage the development of interest and intrinsic motivation in students (see Section 2.2.2).

2.2.6. Goals and Goal Orientations

In research on learning in social contexts, the concept of goal orientations is afforded a great deal of significance in the explanation of the motivational predictors of learning and achievement behavior (see Meece, Anderman, & Anderman, 2006a). *Goal orientations* are regarded as habitualized or dispositional preferences for specific goals that can be pursued in learning or achievement situations. Before addressing goal orientations more specifically, it is important to first clarify what precisely is meant by *goals*.

According to author Zig Ziglar, "A goal properly set is halfway reached." Do you agree with him? Take a moment to think about what a goal is, and what kind of goals you set for yourself.

To answer these questions, we must first consider the psychological definition of the term "goal" which comprises several facets.

Definition

Goals are conscious anticipations of the consequences of one's actions. They refer to future, desirable outcomes of actions, and also encompass a cognitive representation of these consequences of actions (Austin & Vancouver, 1996; Kleinbeck, 2006).

Goals are directly related to a number of functions in our psychological systems (Austin & Vancouver, 1996; Kleinbeck, 2006):

- Goals encourage actions geared toward achieving the associated outcomes; they prompt individuals to act with purpose.
- Goals provide an overarching structure that focuses individuals' use of knowledge, abilities, and skills when pursuing the associated outcomes.
- Goals provide a standard — a desired end state — against which one's current state can be compared to determine progress over time. This standard can also be used following the completion of required actions to determine whether or not they were successful.

In a number of models of self-regulated learning, goals are highlighted as guiding forces that motivate learning behavior (see Chapter 3). More specifically, they are considered to drive and direct activities involving the planning, initiation, monitoring, and evaluation of the learning process.

In principle, goals can focus on any of the conceivable consequences of courses of action (desirable states) pursued during the learning process. In an innovative step, Ford (1992) attempted to develop a taxonomy of superordinate goals and found that individuals pursue various different types of goals such as, for example, social goals (e.g., establishing and maintaining social contacts), achievement goals (e.g., meeting demands), or emotion-related goals (e.g., avoiding boredom). Historically, these overarching classes of goals are cognitive manifestations of motives, and as such, avoid some of the theoretical limitations of the concept of motives (e.g., the motive concept neglects mental processes, differences across subject domains, temporal fluctuations, and complex processes involving action regulation).

Goals can involve either the attainment of desirable states (*approach goals*) or the avoidance of undesirable states (*avoidance goals*). Therefore, a student can pursue the approach goal of being accepted by a certain circle of friends, or the avoidance goal of not being ostracized by those friends. This distinction mirrors

the differentiation made in motive psychology with respect to the proposed subcomponents of individuals' motives (see Table 2.2). Research has been able to demonstrate that approach and avoidance motivation imply qualitatively different psychological processes related to cognition, emotions, and behavior, and has provided evidence that they also differ from neurobiological perspectives (see Elliot, 2008).

In addition to the higher-order, abstract goals described by Ford, individuals' cognitions also include *concrete goals,* usually a large number of them (e.g., "Finish reading two chapters tonight," "Get at least a D in math class," "Make sure I express my opinion at the next parent–teacher meeting," "Don't embarrass myself in front of the class"). These types of goals correspond to intended actions that are formulated at the end of the decisional phase in the Rubicon model (see Section 2.2.1). Concrete goals are often comprised of *subgoals* in the planning and action phases, as per the assumption that goals are hierarchically organized and are frequently subgoals of higher-order goals. A number of empirical studies have explored how factors such as task difficulty, specificity, and the temporal perspective of one's goals (e.g., short- vs. long-term) are related to current motivation and performance (Locke & Latham, 2002). The results of these studies have implications for students in term of set appropriate learning goals in the classroom and for how to optimally scaffold students' goal-setting processes. The following section summarizes these implications for classroom contexts, but they can be generally applied to any goal-setting process.

Implications for Practice: Achievement Goals

- Goals should be *specific*, in other words, they must reflect a *measurable* standard to determine when the goal has been attained. The goal of "Working through four math problems in the next study period" is a more suitable goal than "To work through as many math problems as possible."
- Goals should be based on a *limited temporal perspective* and deadlines need to be *scheduled* — a point in time should be specified by which the goal should be attained. Whereas the higher-order goal that "All students should understand the fundamentals of thermodynamics" can provide a baseline level of motivation, students are probably much more motivated and successful when such abstract goals are broken down into subgoals such as "By the end of the week, all students should understand Gay-Lussac's law."
- Goals should be *personally challenging*, as well as *realistic*. In other words, they should not be too easy to attain, but also not too difficult to prevent premature disengagement. Moderately difficult yet achievable goals afford students the best chances for optimal gains in performance and competence. This issue often poses a challenge for instructors given that individualized scaffolding with respect to goal-setting can be difficult in large classes consisting of students with varying levels of preexisting knowledge and competence.

In contrast to specific higher-order or concrete goals, *goal orientations* refer instead to enduring tendencies within individuals to pursue the types of abstract goals as described by Ford (1992).

Definition

Goal orientations represent stable motivational tendencies that lead to the selection and pursuit of corresponding concrete goals in applicable situations.

In research on learning in social contexts, the main focus has been on three types of goal orientations. Significant work on this topic has been conducted by Dweck (1986), Nicholls (1984), Maehr and Midgley (1991), as well as Ames (1992), and is outlined in Figure 2.6.

Learners are understood as having a *mastery goal orientation* when they preferentially pursue the goal of increasing their competencies, expanding their knowledge, and striving for a comprehensive understanding of the learning material. With these types of goals, the learning process is given primary importance and learning and achievement situations are understood as opportunities to expand one's existing skills. A mastery goal orientation is, from a prescriptive perspective, the most desirable goal orientation — since the primary objective of schools and other instructional settings is, of course, for learning to occur. Instructional and other learning situations are, however, also social situations consisting of other students, teachers, and parents, who together constitute an ever-present audience throughout the achieving striving process. Accordingly, learners also pursue the goals of providing good performances and demonstrating their capabilities to others. Other students pursue the goal of avoiding poor performance outcomes and make a concerted effort to conceal gaps in their knowledge or a lack of ability. For many students, this preoccupation with avoiding low achievement, and the ability implications thereof, is their primary motivation in the classroom. Should this type of motivation persist over time, such learners are said to have a strong *performance goal orientation*. In this case, the learning process is not the focus, but rather the outcome of the learning process is of primary importance — more specifically, the assessment of one's abilities relative to others. For these individuals, learning and performance situations are interpreted as settings in which an individual can or must demonstrate their abilities and engage in social comparison. In addition to these two basic goal orientations, Nicholls (1984) suggested a third approach referred to as *work avoidance goal orientation* in which an individual aims to exert the least amount of effort possible when completing a task, and generally avoids learning endeavors altogether.

With respect to performance goal orientations, researchers soon made a differentiation between *performance approach* and *avoidance goals* in order to better explain the inconsistencies being found in empirical studies based on a one-dimensional conceptualization of performance goal orientation (e.g., Middleton & Midgley, 1997). Should learners be pursuing performance approach goals, they are said to be motivated mainly to demonstrate that their knowledge and capabilities are better than those of others. On the other hand, should they be pursuing performance

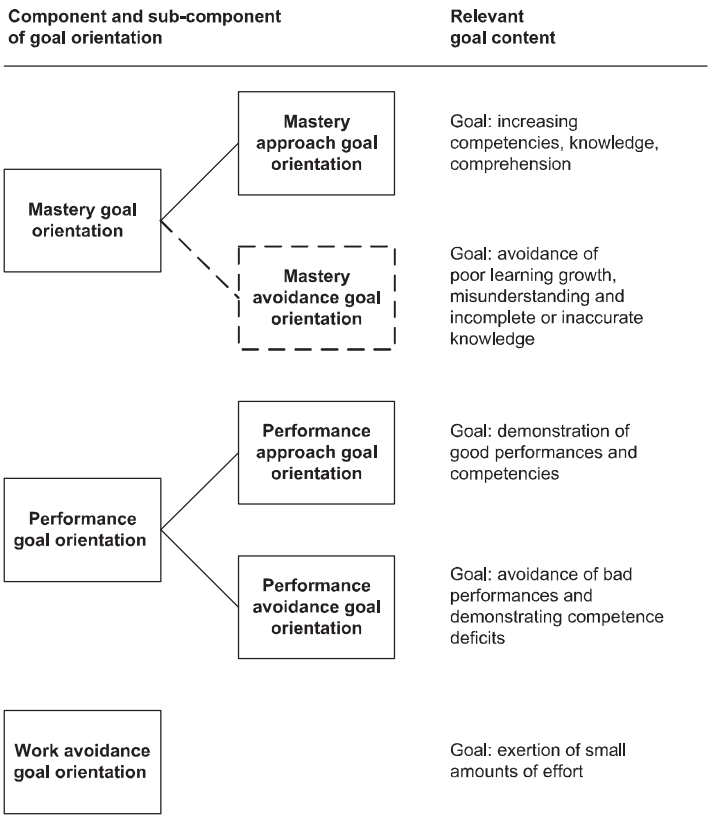


Figure 2.6: Achievement goal orientations in educational contexts.

avoidance goals, they will instead attempt to avoid poor performance and prevent others from thinking they may be deficient in their knowledge and abilities. Taking things a step further, Ziegler, Dresel, and Stöger (2008) were able to show that students' performance goals are often addressee specific, that is, focused on establishing positive impressions with specific individuals (e.g., teachers, classmates, parents, themselves). The suggestion has also been made to similarly differentiate between *mastery approach goals* and *mastery avoidance goals*, in other words, between goals that focus primarily on acquiring knowledge and competencies, and goals that instead focus on avoiding poor learning progress and incomplete or inaccurate knowledge (Elliot & McGregor, 2001). The importance of this differentiation is, however, still disputed in the research literature as there is very little evidence

concerning the prevalence and effects of mastery avoidance goal orientation (for an overview, see Moller & Elliot, 2006).

A number of empirical studies have shown that the types of goal orientations described above are associated with different cognitive and affective processes, as well as differences in learning behavior (for an overview, see Meece et al., 2006a). More specifically, a mastery (approach) goal orientation tends to be associated with the selection of challenging tasks, extensive effort, the application of deep-level learning strategies (cognitive elaboration), and optimal self-regulation of one's learning activities including adaptive responses to failure. In contrast, a performance avoidance goal orientation is typically associated with lack of effort, the use of surface-level learning strategies (memorization), experiences of test anxiety, as well as helpless reactions to failure and poor achievement levels. The performance approach goal orientation is commonly found to correspond with positive self-assessments and short-term performance gains, but does not ensure intensive, long-term engagement with a specific topic (ambivalent effects). Research on the mastery avoidance goal orientation has so far been sparse. Early indicators do however suggest that the effects of this orientation are not as negative as those associated with the performance avoidance goal orientation, but not as positive as those resulting from the mastery approach goal orientation. Finally, students with a strong work avoidance goal orientation often show little interest in their learning objectives, engage in ineffective study strategies, and demonstrate poor achievement levels. In summary, an extensive and increasing body of evidence suggests that an orientation toward mastery goals is most beneficial for learning, and serves to optimally protect one's motivation when confronted with failure experiences. These effects are opposite of the effects of performance and work avoidance goal orientations on the learning process, particularly with regard to the previously mentioned increased risk for maladaptive reactions to failure.

Empirical studies on goal orientations also indicate that they are not independent from one another, but are related to each another (see Pintrich, 2000). For instance, mastery goals tend to be positively correlated with performance approach goals, and negatively correlated with performance avoidance goals and work avoidance goals. These relationships suggest that learners often pursue several goals in specific learning situations (*multiple goal setting*). Moreover, preliminary empirical findings indicate that goal orientations are not motivational tendencies that are consistent from one subject domain to the next, but are rather "domain-specific" in nature — students' goals can substantially differ depending on the specific type of learning task (e.g., homework vs. classroom learning) and subject domain under consideration (e.g., language vs. science classes; Bong, 2001).

2.2.7. Interest

From the previous section it is clear that in current research motivation and motivational tendencies are increasingly being conceptualized in domain-specific and

object-specific ways. One motivational tendency, which by definition is specifically related to an object, is *interest* (see Krapp, 2002).

> **Definition**
>
> *Interest* is a particular relationship maintained by an individual with regard to an object. Objects can be specific objects (e.g., robots), abstract object fields (e.g., electrical engineering), or classes of activities (e.g., building electronic devices with kits). The distinctive features of interest within individuals include the experience of positive emotional states (e.g., joy) when interacting with the object of interest (emotional value), high subjective value of this object (personal importance on a cognitive level), as well as the aim of expanding one's knowledge of this object (epistemic orientation, mastery goals).

In this particular form of person–object relationship, one's actions undertaken in relation to the object of an individual's interest are often characterized by high levels of intrinsic motivation and intensity. This is particularly evident when one's interest is persistent over time; when interests are not restricted to specific situations. When it comes to consistent interests within an individual, it is also important to acknowledge that different people can differ greatly from each another in terms of what interests them (e.g., Anna is interested in biology, Katharina is interested in volleyball). In the research literature on interest, this differentiating motivational tendency is more specifically referred to as *personal interest* or *individual interest*. Hobbies that are maintained over a long period of time are often examples of personal interests. In the academic domain, personal interests are often significant predictors of the types of classes, degree programs, and career paths students choose to pursue. Furthermore, they are positively correlated with the use of deep-level learning strategies (e.g., cognitive elaboration) and academic achievement in the domains that correspond to the area of interest (for an overview, see Schiefele, 2001). One can also assume reciprocal relationships between students' interest and their grades (see Figure 2.2): A high level of interest results in persistence toward the learning objective that then leads to greater achievement in school (due to interest being positively associated with intrinsic value). Better grades, in turn, tend to encourage the development and persistence of interest in students (due to higher achievement being positively related to students' beliefs in their academic abilities).

As a separate concept from individual interest, *situational interest* refers to the temporary spike in curiosity in students that is generated mainly by certain elements of the learning or teaching situation (as opposed to originating from the individual themself). For instance, situational interest may be prompted by an interesting reading, novel classroom technology, or the use of an anecdote, debate or game to stimulate students' initial engagement in the subject matter. Conceptually, this type of situationally generated interest is quite similar to the intrinsic value of a learning activity as previously described (see Section 2.2.4).

2.2.8. *Self-Concepts*

When engaging in self-reflection, students have access to more detailed information about themselves than do others. This privileged information allows them to formulate specific estimates of their academic capabilities or personal characteristics such as physical attractiveness or intelligence. This self-related knowledge, regardless of its accuracy, is collectively captured under the umbrella term *self-concept*. More specifically, the types of self-concepts that are typically evaluated by researchers are "declarative" in nature, meaning that these self-evaluations are made consciously and can be explicitly stated by students (e.g., "I am intelligent"). In addition to this cognitive component, self-concepts also have emotional undertones (e.g., "I feel as though I am a valuable person") that although are critical elements of how one evaluates oneself, can be conceptually distinguished from the more cognitive part of one's self-concept and instead referred to as self-esteem (Harter, 2006). Of course, the most important types of self-concepts for students are those that are most relevant to learning and achievement, namely those regarding their abilities in academic domains (e.g., perceived ability to solve math problems, to learn quickly) as opposed to nonacademic domains (e.g., athletic ability, physical attractiveness, social skills).

Definition

The *academic self-concept* refers to the declarative self-evaluation of one's cognitive abilities.

Generally speaking, students' evaluations of their cognitive abilities in the academic domain involve the *magnitude* of these abilities and are commonly referred to not only by the term *academic self-concept*, but also *self-concept of ability*, *confidence in one's abilities*, as well as *perceived academic competencies*. It should also be noted that these estimations of one's abilities may be realistic or may either overestimate or underestimate one's actual capabilities. However, without access to systematic diagnostic procedures, it is often difficult for teachers to determine whether a given student has a high or low academic self-concept (see Praetorius, Berner, Zeinz, Scheunpflug, & Dresel, 2013). It is even more challenging for teachers to ascertain whether or not their students have a realistic understanding of their abilities. For the most part, teachers' assessments in this regard typically involve comparisons with other students — determining a student's relative standing with regard to the magnitude of their self-concept (e.g., lower than most of their classmates) and comparing this with their relative standing with regard to their actual achievements (e.g., obtains higher grades than 60% of their classmates).

In addition to students' estimations about their ability levels, their evaluations with respect to the *variability* of their abilities over time are also important. These beliefs, however, are not very explicit and are often referred to as *implicit theories* (Dweck & Leggett, 1988). Some students' theories about their abilities reflect a belief

that they can improve their abilities (e.g., intelligence) by investing effort and learning, in other words, that they can modify their abilities (incremental theory). Alternatively, other students are convinced that these abilities are stable over time, and are therefore unchangeable (entity theory). As opposed to the latter approach, the first perspective which assumes that one's abilities can be modified can serve to protect against disruptions or breakdowns in motivation and performance after failure experiences, mainly because it is believed that ability deficits can be remedied through appropriate learning efforts (see Dweck, 2000). An overview of the consequences associated with implicit ability theories is provided by Dweck and Molden (2005).

Returning to the more commonly assessed self-concepts regarding the magnitudes of one's abilities, a student's overall academic self-concept is generally hypothesized to be based on a multilayered evaluation of one's abilities across various academic domains and activities. Thus, at a certain stage of development, more specific self-concepts can be empirically differentiated based on the domain to which they refer, such as a self-concept pertaining to mathematics as compared to a students' self-concept regarding language skills. A similar example involving sports activities would be a distinction between self-estimations of one's basketball skills versus one's skills in gymnastics. According to a popular theoretical model by Marsh and Shavelson (1985), academic self-concepts (and self-concepts in general) are assumed to adhere to a hierarchical structure. According to this assumption, self-concepts that are specific to the domains of mathematics, the natural sciences, and the language arts are all hypothesized to be subcomponents of an overall academic self-concept. Further, each domain-specific self-concept is assumed to be broken down into specific self-concepts for every school subject (e.g., physics vs. chemistry; see Figure 2.7), with each of these in turn, being subdivided into self-concepts for specific learning tasks (e.g., physics homework vs. test completion). It is assumed that the more generalized self-concepts that are higher up in the self-concept hierarchy are more stable over time than the domain- and task-specific self-concepts that are more likely to vary over time.

A broad range of empirical studies have confirmed that students' estimations of their abilities are indeed organized in a domain-specific and task-specific way (Marsh & Craven, 1997). One surprising finding in this research involves the relationships between these various specific facets of self-concept: Although moderately positive correlations between achievement in different domains are found, and self-concept shows strong correlations with achievement in a specific domain, one's self-concept in one domain is usually not correlated with one's self-concept in another domain. For example, a meta-analysis by Möller, Pohlmann, Köller, and Marsh (2009) conducted on a total of 69 existing studies found the relationship between students' self-concepts in math and language domains to be almost negligible, despite high correlations between students' performance in the math and language domains (high achievement in math is often associated with high achievement in language courses). This finding is significant as it challenges the conception that self-concepts of ability are hierarchically organized in that "neighboring" self-concepts were not significantly interrelated and thus cannot be assumed to form a coherent

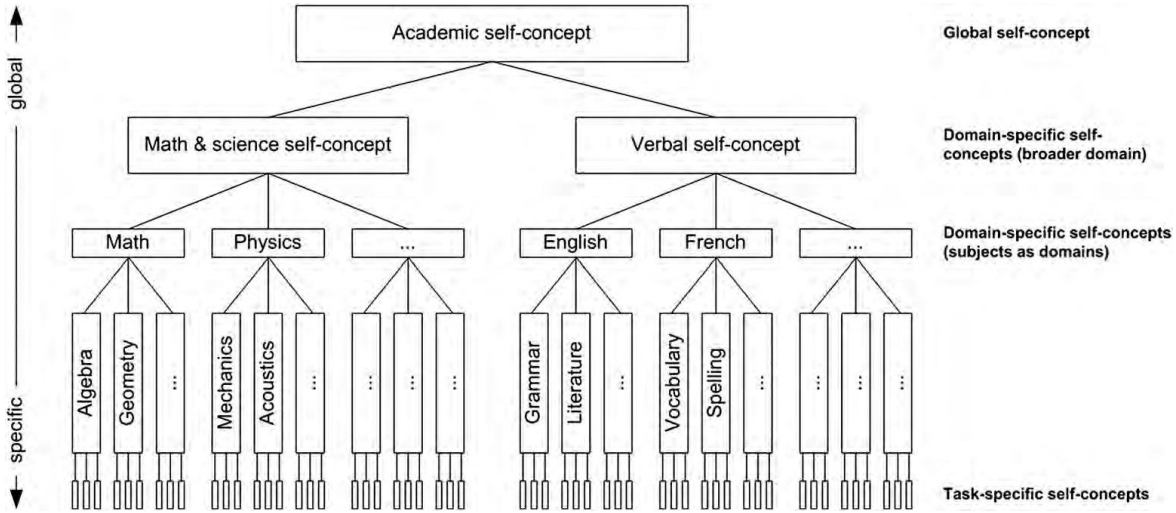


Figure 2.7: Domain-specific organization of academic self-concepts (adapted from Stiensmeier-Pelster & Schöne, 2008).

basis for a superordinate self-concept. Rather, these results suggest that domain-specific self-concepts should instead be understood and evaluated as independent constructs and prompted the development of an updated conceptualization of self-concepts referred to as the *internal/external frame of reference model* (*I/E Model*; Marsh, 1986). With regard to the relevance of self-concepts for self-esteem, findings have also been able to show that different students do assign different degrees of importance to specific ability areas in accordance with their personal attainment values (see Harter, 2006).

Students' self-concept of ability has a multitude of effects on their current motivation, the quality of the learning strategies they use, as well as their academic achievement as demonstrated in numerous research studies (for an overview see Marsh & Craven, 1997). With regard to the effects of students' academic self-concept on their current motivation, self-estimations of one's ability are an important predictor how successful one expects to be at a learning task. How a student develops an expectation about whether or not an action process or a task can be successfully completed is understood to be a cognitive process in which the perceived difficulty of the task is assessed in relation to the availability of the skills required to complete it. It is commonly assumed that students' expectations for success are ultimately dependent on domain-specific and task-specific self-concepts as well as the difficulty of the task at hand (see Eccles, 1983), at least when these cognitive comparisons are elaborated on and processed consciously (Reinhard & Dickhäuser, 2009).

Furthermore, a series of studies have determined that students with high academic self-concepts are less likely to experience intrusive cognitions that are irrelevant to the learning task (e.g., worry, self-doubt), use deep-level learning strategies focused on understanding, use meta-cognitive strategies to better regulate their learning progress, and show greater persistence than students with lower self-concepts. These effects are assumed to be due to students with high academic self-concepts having higher expectations for success that, in turn, lead to optimal learning and engagement (a "mediation" effect).

A large number of studies have shown that, similar to their effects on the learning process, both general academic as well as domain-specific self-concepts are positively correlated with scholastic achievement. Empirical findings further suggest that reciprocal relationships may be involved (e.g., Helmke & van Aken, 1995): On the one hand, self-concept are influenced by a student's previous achievements (mediated through their subjective interpretations), yet on the other hand, higher self-concepts have a positive influence on learning processes that, in turn, lead to better grades. This beneficial effect of self-concepts on achievement is still evident even when the effects of prior achievement is statistically controlled for (meaning that self-concept still had significant effects on later achievement gains over and above what one would expect based on students' previous performance).

Given the extensive effects associated with academic self-concepts, it becomes clear that a positive view of one's own abilities has a far-reaching significance for motivated and effective learning processes. Therefore, moderately optimistic

self-concepts are considered optimal for motivation as they reflect self-confidence as well as the need to still master the academic content.

2.2.9. Causal Attributions

In order to adequately understand and explain how students respond to outcomes and events in the academic domain (most importantly, success and failure experiences) in terms of their subsequent motivation and learning behaviors, considerable research has been conducted on how students perceive these experiences with respect to their *causal attributions* for why these events occurred.

Definition

Attributions are the causes that individuals believe are responsible for their experiences, actions, and achievement outcomes.

Attributions are therefore causes that are subjectively perceived by the learner to account for outcomes, and as such, are not necessarily realistic. Instead, one's causal attributions for why something happened can be affected by various types of attributional biases that can be present to different degrees in different learners (for an overview, see Fiske & Taylor, 2007). For example, the attributions students make, on average, tend to protect or enhance their own self-esteem: They tend to explain successes with personal characteristics and failures with unfavorable circumstances. Furthermore, students' self-concepts can influence the kinds of attributions they make with students having a high academic self-concept being more likely to demonstrate this type of highly self-protective attributional pattern, and students with a low self-concept tending to attribute success to external factors and failure to insufficient ability. Although the latter case is indeed consistent with a negative self-image, in attribution research it is referred to as a pessimistic attributional style characterized by the frequent underestimation of the potential courses of action that are available to that individual.

According to attribution theory (and appraisal theories more generally; see Chapter 1), it is the subjective interpretation of one's experiences, and not objective reality, that is most relevant for one's subsequent motivation and behavior. The causes to which we attribute events and their outcomes have a significant influence on how we perceive our environment, and further, how we perceive ourselves (our subjective reconstructions of reality). Should this perceptions turn out to be unrealistic, these beliefs can result in inappropriate behavior and — particularly in learning contexts — in an inadequate utilization of learning opportunities (e.g., a student who inaccurately believes their failure is due to teacher bias is less likely to make use of available study time or tutoring services). Therefore, realistic attributions, or alternatively, attributions that reflect a slightly optimistic perspective on the potential courses of action, are considered to be "functional" or "adaptive." In contrast, unrealistic attributions, particularly when they reflect an underestimation of

one's opportunities to learn and succeed, are considered to be "dysfunctional" or "maladaptive" in nature (see Försterling, 2006).

Individuals frequently think about the causes of the events they or others experience. We do this deliberately, especially when the outcomes or events we encounter are important, unexpected, and most importantly, viewed as unpleasant or negative (e.g., Möller & Köller, 1999; Stupnisky, Stewart, Daniels, & Perry, 2011). In educational settings, students' attributions for their achievement outcomes (success vs. failure) are most commonly assessed.

For high-school and university students, exams are commonplace and considered to be especially important academic events given their academic and personal implications. Try to remember a time when you received a good grade on a major exam in an important class. Why did this happen? Take a few minutes to consider what you believe to be the most important reasons behind this success.

Was it because you studied hard and prepared well for the exam? Was it because the exam was easier than expected? Was it due to superior skill or your abilities? Did you do well because you tend to do well on the specific types of questions included on the exam? Was it because you were able to effectively calm your nerves during the exam? Was your success due to help from other students before (or during) the test? Was it perhaps just luck?

One can thus attribute achievement outcomes to various types of causes: In principle, for every academic event there exist a number of potential differing explanations. However, when responding to specific success or failure outcomes in educational settings, there are certain causal explanations that are quite frequently used. For positive performance outcomes (success), these causal attributions can be deduced from, or are similar to, those listed in the "stop and reflect" example above (see Dresel, Schober, & Ziegler, 2005). When coming up for an explanation of failure, one often refers to lack of ability, low or ineffective effort, task difficulty, lack of assistance from others, ineffective coping strategies for stress and nervousness, as well as bad luck.

In order to describe the effects that these different types of explanations can have, it is important to keep in mind that these causal attributions do not themselves directly impact achievement outcomes. Instead, they tend to lead to other types of cognitions and emotions within the individual that, in turn, predict learning behaviors and academic performance. The most influential as well as practical theory concerning the effects of causal explanations on performance and achievement is the attributional theory of achievement motivation developed by Weiner (1986). In his theoretical model, Weiner suggests that any attribution chosen to explain an academic outcome can be classified according to three different factors, referred to as *attributional dimensions*:

- *Locus of causality* (also often referred to as "Internality"): Is the cause located within the individual, and therefore an internal factor? Or is the cause located outside the individual, referring instead to the influence of external factors?

- *Stability*: Does the cause remain the same for similar future events; is it stable over time? Conversely, does the cause fluctuate over time and is thus unstable?
- *Controllability*: Can the individual or others change the cause or control it through their own actions?

In his initial formulation, Weiner focused mainly on the first two dimensions and outlined the most frequently used attributions for success and failure in a popular 2×2 schematic (combination of locus of causality and stability). He later incorporated the third attributional dimension into a $2 \times 2 \times 2$ schematic that addressed the important differentiation between attributions that were personally controllable, or controllable by others, and those that were not. The revised conceptualization is depicted in Table 2.3.

It is important to note here that students often differ significantly in their understanding of how these attributions are viewed with respect to the three attributional dimensions. Again, aside from normative assumptions of what these attributions commonly denote, what is most critical is what the student believes the attribution to imply — the students' own opinion about what the perceived cause of an academic outcome or event actually means with respect to how internal, stable, and controllable it is to them. For example, whereas two students may believe lack of intelligence is the cause for a failure experience, these students may differ in their beliefs about how much one's intelligence can be improved through effort (see "implicit theories" in Section 2.2.8).

In addition to the idea that the same attribution can be viewed differently by different students, the subjective nature of causal attributions further implies that different explanations for academic events can actually have the same effects on motivation and achievement if they share similar underlying causal dimensions. In other words, one's beliefs about what various attributions represent in terms of their internal versus external origins, stability over time, and controllability can result in various attributions being effectively classified as equivalent in terms of their consequences (e.g., when poor study strategy and lack of persistence are both seen by a student as internal, unstable, and personally controllable). This is a central assumption in Weiner's theory (1986) — that different attributions

Table 2.3: Revised scheme adapted from Weiner (1979) to classify important causes of success and failure along three attributional dimensions: "locus of causality," "stability," and "controllability."

	Internal		**External**	
	Controllable	**Uncontrollable**	**Controllable**	**Uncontrollable**
Stable	Continued effort	Ability	Teacher bias	Difficulty level
Unstable	Immediate effort	Mood	Help from others	Luck

with similar attributional dimensions lead to identical results with respect to motivation, emotions, learning behavior, and achievement outcomes (see also Dresel et al., 2005).

The most relevant causal dimension with respect to expectations for success is the stability dimension. In this regard, Weiner postulates that the more stable a causal explanation for achievement is perceived to be, the more it is expected that the outcome can be repeated in the future. Put simply, if you believe you succeeded due to something that won't change, your expectations for success will increase or stay high. Whereas success attributed to stable factors should raise a low expectation and stabilize a high expectation, success attributed to factors that vary over time should have no effect on expectancy for success, regardless of how high or low it may be. In the case of failure experiences, the converse is true: Whereas failure attributed to stable causes should lower or maintain low expectations, failure attributions to variable factors should not affect expectancies. The relationship between the stability of the perceived causes and expectancy for success has been empirically confirmed by a large number of empirical studies (see Graham, 1991). Moreover, several studies conducted outside of a laboratory in natural learning contexts have demonstrated that the controllability dimension is significantly related to expectations for success. In this case, expectancy for success tends to be higher when success and failure experiences are attributed to factors that are within the personal control of the student (see Dresel et al., 2005).

Therefore, the stability and the controllability aspects of causal attributions have been found to correlate with the expectancy components of motivation. Accordingly, it stands to reason that the assumptions learners make regarding the strength of their academic abilities (ability self-concept), as well as other expectancy-based constructs, should be correlated with attributional processes. In support of this assertion, studies such as one by Skaalvik (1994) indicate that attributions of failure to lack of effort (internal, unstable, controllable) can help to protect against drops in academic self-concept and self-esteem. As such, it is clear that one's causal attributional style and one's academic self-concept can be described as having a reciprocal, mutually stabilizing dependent relationship, with students having high self-concepts tending to make ability attributions for success, and attributions to effort serving to bolster one's self-concept after failure feedback. This symbiotic relationship between attributions and academic self-concept helps to explain why these two motivational components are not immediately impaired after unexpected events, but rather only after several rounds of learning-related courses of action.

According to another empirically supported assumption in Weiner's (1986) theory, the locus of causality dimension should directly lead to specific emotional experiences following success or failure. For instance, a success experience coupled with an internal attribution should be followed by a sense of pride, whereas success that is attributed to external or environmental factors should not result in self-reflective emotions and have little impact on one's self-esteem. After failure events, attributions to internal factors should conversely correspond to lower feelings of pride and self-esteem, which is why blaming external factors tends to be a popular,

albeit short-sighted, strategy used by students to protect their self-esteem (especially defensive students with high self-esteem; Hall, Jackson, Goetz, & Musu-Gillette, 2011). Similarly, the causality dimension should result in specific emotional consequences. For example, success experiences believed to be primarily due to the assistance from the teacher (external, controllable) should lead to feelings of gratitude. In the case of failure, attributions to lack of effort (internal, controllable) are expected to result in feelings of guilt, whereas attributions to teacher bias (external, controllable) should lead to anger. Finally, the stability dimension is also assumed to lead to specific emotions, through its effects on expectations for success: Success should lead to feelings of hope, whereas repeated failure should result in feelings of hopelessness (see Chapter 1).

With regard to the effects of these various causal explanations, it becomes clear that in cases of success, internal causal attributions are associated with the most beneficial effects for learning and achievement motivation. In cases of failure, it is instead unstable and personally controllable causal attributions that are the most advantageous. Thus, from a broader educational perspective in which both success and failure events are considered, personally controllable types of attributions are found to correspond with optimal learning processes and overall academic success. For example, whereas attributions to intelligence are motivating after success and can lead to shame after failure, attributions to insufficient effort help to maintain motivation levels after both success and failure events because it is an internal as well as personally controllable attribution. Particularly detrimental are failure attributions to factors that are perceived as internal, stable, and personally uncontrollable, particularly attributions to lack of ability, and especially when such attributions are not realistic (e.g., when opportunities to improve one's performance are indeed available).

Consistently attributing failure events to deficiencies in one's abilities is often considered to be characteristic of a phenomenon referred to as *learned helplessness* (see Dweck, 2000). This phenomenon describes a systematic tendency to overlook opportunities to learn and make maladaptive explanations for negative experiences that are internal, stable, and "global" in nature (that last dimension refers to attributions that apply to several areas of one's life). Learned helplessness is associated with motivational deficits (resignation, passivity, and apathy), cognitive deficits (difficulty recognizing opportunities, inability to escape rumination over setbacks), and emotional deficits (feelings of hopelessness and depression). In an educational setting, learned helplessness is primarily understood as the inability to see opportunities to learn and improve one's knowledge and abilities as evidenced by statements such as "It doesn't matter how much I study, I won't ever understand anything" or "I will always perform poorly, regardless of how hard I try." Learned helplessness has been observed among students in various grade levels and subject domains, and affects a significant proportion of students. The prevalence of this demotivating predisposition implies that teachers should be capable of recognizing the symptoms of learned helplessness, and further, be equipped with effective strategies for helping students overcome this motivational deficit (see Section 2.4.3).

Conclusion

One's motivation to complete a specific learning task is the result of situation-specific assessments of the desirability (value) and expectations pertaining to the feasibility (expectancy) of possible courses of action, which themselves are a product of interactions among relatively stable motivational tendencies and beliefs (goal orientations, interests, self-concepts) and characteristics of the learning environment. Motivational tendencies and beliefs, as well as one's motivation in a given situation, influence the entire learning processes and are important predictors of learning quality and achievement outcomes. Depending on one's performance, and the causal factors (attributions) that are believed to be responsible for it, adjustments may be made to expectations and values related to similar tasks or subject areas, to one's motivational tendencies and beliefs, as well as to the learning environment.

2.3. Developmental and Environmental Effects on Motivation

In the previous sections, we established that social factors and characteristics of the learning environment have a significant influence on various components of one's motivation to learn and through repeated courses of action, and can further impact the development of enduring motivational tendencies and beliefs (see Figure 2.2). Accordingly, the view that one's current motivation in a given learning situation, as well as one's motivational tendencies and beliefs, are characteristics that vary only between individuals is inadequate. Instead, a comprehensive perspective on the antecedents and effects on motivation in students must consider both individual differences as well as situational influences on students' motivation. More specifically, teachers have the potential, and thus the responsibility, to substantially impact the motivation of their students through the use of teaching techniques that maintain and bolster motivation in their students, as well as utilize classroom structures and interaction techniques that promote motivation in their students (see Urdan & Schoenfelder, 2006).

The following sections are devoted to understanding the development of learning and achievement motivation, and in particular, the influence of environmental characteristics (e.g., teachers, classroom instruction) on motivation in students. Before describing these influences, however, we must first consider general patterns in the development of the various components of motivation as outlined above. For more detailed elaborations of the developmental trajectories of motivational constructs, please refer to Heckhausen and Heckhausen (2008).

Think about the various ways teachers and parents can influence the development of motivation in students. In doing so, feel free to refer back to the descriptions of the different motivational components in Section 2.2, as well as the conceptual framework of learning and achievement motivation outlined in Figure 2.2.

2.3.1. *Development of Achievement Motives, Attributions, Self-Concepts, and Interest*

Development of the achievement motive. The development of an achievement motive can be broken down into several developmental phases (cf. Heckhausen & Heckhausen, 2008). The first phase begins in infancy and is characterized by displays of joy resulting from having caused an effect: Starting at about the age of three months, children find pleasure in engaging in actions that produce observable consequences. For example, this could be demonstrated by the repetitive knocking of one object against another to obtain a sound, or pushing a round object to see it roll. The pleasure derived from causing this effect does not require any sort of external social reinforcement. This "effectance motivation" can be understood as an early form of achievement motivation.

In their second year, children begin to develop an understanding of their responsibility for causing effects and show a desire to produce effects and perform tasks on their own without assistance. Children express this desire through verbal statements such as "myself" or "alone" and — should these wishes not be permitted — they may have strong emotional reactions.

The third phase occurs at about age three and involves the outcomes of one's actions leading a perception of one's capabilities or efficiency. Further, children's emotions during this phase also become more differentiated in that in addition to emotions that are experienced immediately following the effect (e.g., joy, frustration), more specific achievement-related emotions are also experienced (e.g., pride after success, shame after failure), at least in the presence of significant others. This intriguing development indicates that, from this point forward, the child is no longer just concerned with the mere generation of effects, but is willing to compare their behaviors and performance against a standard of efficiency, which is typically inferred through the reactions that are elicited by their actions in their social environment. From this stage on, actions are not just understood as being motivated by effect, but also by achievement in a narrower sense. Toward the end of this phase, one can already observe the differentiation among children in the predominance of one of two components of the achievement motive (need for achievement), hope for success and fear of failure. This orientation can — depending on environmental conditions — further stabilize and, in many cases, develop into a personality trait that influences scholastic achievement motivation (see Section 2.2.5).

The fourth phase in the development of achievement motivation kicks in at about four-and-a-half years of age, and is characterized by the desire to set *aspiration levels* and consider *reference norms* (evaluative standards). When dealing with specific tasks, children at this stage of development are capable of setting goals on the basis of their previous successes and failures (e.g., how high they want to jump). In other words, children at this stage are able to set an aspiration level — a specific standard for one's behaviors and achievement against which success and failure can be clearly determined. As outlined below, there are three types of standards against which students typically compare their progress and performance to determine how well they are doing.

Definition

- An *individual reference norm* (synonyms: intraindividual or self-based standard) involves comparisons between one's current and previous performance.
- A *social reference norm* (synonyms: normative, interpersonal, or other-based standard) entails the performances of the other members of a social reference group being used as a benchmark.
- A *criteria reference norm* (synonyms: absolute or task-based standard) refers to comparisons with standards specific to the task itself (e.g., a set list of task requirements, preset educational standards).

Individual reference norms are found to be used by students early on in their development (ages: 4–6 years). These norms are then accompanied by social reference norms that develop during the early elementary school years (ages: 6–8 years). The development of a social reference norm does not necessarily imply a loss of significance for the individual reference norm. In fact, they coexist nicely and either of the two can be applied depending on the specific characteristics and demands of a given learning situation.

With respect to parental conditions, warm and supportive behaviors on the part of the parents, as well as high yet realistic performance expectations, have been found to promote favorable development of achievement motivation. As research on classroom environments and teacher expectations has pointed out, this principle also applies to teacher behavior (for an overview, see Schunk et al., 2008; see also Walker, 2009; Wentzel, 2009). Furthermore, reference norm orientations in teachers themselves have actually been found to correlate with achievement motivation in their students, with individual reference norms leading to an intensification of the "hope for success" motive component in students, and social reference norms instead being associated with greater "fear of failure," particularly in low-achieving students.

Development of causal attributions. By the time they start elementary school, children are already starting to attribute specific causes to their successes and failures. Early work by Nicholls (1978) suggests a prototypical course of development in which children do not initially differentiate between "effort" and "ability" as causal attributions for a learning outcome. Instead, attributions to effort are initially the most common attributions made by children which is likely due to it being easily observed (e.g., "I tried and it worked!"). Ability, in contrast, is not directly observable and must be deduced from both the performance outcome and the amount of effort expended. Thus, a prerequisite for making such attributions is the capacity to cognitively distinguish effort from ability, which is usually acquired between the ages of 9 and 12. Finally, children tend to start making more complex attributions to factors beyond themselves, such as luck or situational circumstances, by about age 12. Prior to this stage of development, performance outcomes which may most accurately be attributed to fortunate, or unfortunate, circumstances are likely to be incorrectly attributed to effort.

Development of the (domain-specific) self-concept. Generally speaking, domain-specific self-concepts are the result of experiences of competence in that domain, and in particular, the perceived experience of success or failure following the completion of a task. As soon as more elaborated attributional processes start to develop, however, success and failure do not automatically trigger changes in one's academic self-concept. It is instead after occurring repeatedly that these outcomes lead to adjustments in self-concept beliefs, due to being constantly filtered through attributional processes (see Section 2.2.9). Likewise, hints from significant others (e.g., teachers, parents, classmates) that suggest ability may play a part in one's performance can also influence students' self-concept of ability (e.g., Meyer, Reisenzein, & Dickhäuser, 2004). Although these social influences can be direct in nature (i.e., explicit statements pertaining to ability), indirect communications about perceived ability are more common and can be implied by emotional reactions, the type of assistance provided, the task difficulty of assigned tasks, as well as praise or blame. For example, teachers may communicate low ability attributions by showing surprise in response to good performance, or pity (and consolation) following poor performance, both of which can lead to a lower self-concept. Likewise, students can interpret being assigned simple tasks and receiving unsolicited assistance as indicative of the teacher believing their skills are limited. In a similar manner, extensive praise following the successful completion of rather simple tasks can decrease a student's self-concept, whereas assigning blame to the student and expressing disappointment following failure on more difficult tasks can improve a student's self-concept (see Chapter 1 for more on expressing mild negative emotions that motivate students). In each of these cases, students are receiving indirect communications about their academic abilities from others that, in turn, affect — via attributional processes — their academic self-concept.

With regard to the overall development of students' academic self-concepts over time, there are a number of rather significant general developmental transitions (for an overview, see Butler, 2005). Children in the early elementary school years tend to overestimate their competence levels, with more realistic self-concepts being established only once they become more familiar with specific subject areas, or when they have access to more informative and individualized feedback. Moreover, the self-assessments made by children in early elementary school are not particularly differentiated with regard to particular subject areas (e.g., mathematics), and are initially only weakly associated with global self-esteem or scholastic achievement.

With greater exposure to academic achievement experiences, direct and indirect ability-related feedback from teachers and significant others, as well as social comparisons in the classroom come significant changes in students' academic self-concepts soon after starting elementary school: On average, academic self-concepts decrease significantly and become increasingly more realistic. Furthermore, with increasing age and experience, children begin to acquire more specific assessments of their abilities in specific subject domains (e.g., mathematics self-concept vs. languages self-concept). By the second half of elementary school, students' academic self-concepts also start to be significantly correlated with their overall self-esteem and academic performance, with the achievement level of their reference group

(classmates) now playing a significant role in shaping their self-concept beliefs (see Section 2.2.8). At this point in development, the social reference norm is especially important, with students' self-concepts being highly dependent on their status relative to their classmates with respect to their achievement level. That is, students who perform better in comparison to their classmates are more likely to have higher self-concepts.

In addition to comparisons with others through social reference norms, internal comparisons made by a student across different subject domains also influence their self-concepts (e.g., when a student determines they typically perform better in English than in mathematics). These comparisons are referred to as cross-domain or dimensional comparisons, and were alluded to earlier in this chapter in context of the *internal/external frame of reference model* (I/E Model; Marsh, 1986; an overview of several empirical studies is provided by Möller et al., 2009). In essence, the prediction made by the I/E model pertaining to the effects of comparisons within a given student across subject domains on their academic self-concept is that such cross-domain comparisons tend to lead students who perform well in one subject to underestimate their abilities in another subject, and vice versa. Accordingly, the student in the preceding example above would be expected to downgrade her perceived mathematical abilities and instead emphasize her linguistic capabilities. In fact, empirical studies have revealed weak to moderate negative correlations between achievement in language domains and students' self-concepts related to mathematics, as well as between math achievement and verbal self-concepts (see Möller et al., 2009). These dimensional comparisons explain the phenomenon first presented in Section 2.2.8 that students' self-concepts in different academic domains are frequently independent of one another, despite moderate positive correlations being found between students' achievement levels in the respective domains.

Development of interest. The development of interest in students can be understood as a process of *interest differentiation*. As a consequence of this increasing differentiation in students' interests, starting at about mid-adolescence, students have specific profile of interests that becomes increasingly stable over time. In spite of this increase in the clarity and specificity of students' academic interests, it is important to acknowledge that interest continues to develop even at this age, and that the classroom environment still plays a significant role in the development of interest in adolescents. Consequently, recent research has devoted itself to the question of how students' interests are formed and change over time (see Section 2.2.7). According to Krapp (2002), both cognitive as well as emotional factors are responsible for the specific type of interests that students develop. He postulates that a student will only develop a permanent ("personal") interest in a learning activity or subject when they consider it to be of value to them, and if the overall emotional experience when dealing with activity or object is positive. Similar to the principles outlined in self-determination theory (Deci & Ryan, 1985), theories related to interest in students are based on the assumption that this emotional response to learning should be especially positive when the students' needs for autonomy, competence, and relatedness are met (see Section 2.2.5). Several studies conducted

in both the educational and occupational settings provide empirical support for this assumptions (for an overview, see Krapp, 2005).

In their *four-phase model of interest development*, Hidi and Renninger (2006) describe the formation of students' personal interests and directly address the differentiation of these interests over time. As outlined below, the four phases differ from each another in terms of the types of emotions experienced when completing tasks in students' domain of interest, students' subjective assessments of these domains, as well as the role played by domain-related knowledge in a given subject domain:

1. *Triggered situational interest* is elicited by features of the learning environment (e.g., interestingness, group work, digital media), and typically must be maintained by external factors (e.g., the teacher, content format) to prevent declines.
2. *Maintained situational interest* is characterized by student attention and engagement over a longer period of time, and is primarily produced through the meaningful and personal involvement of students in classroom activities. Sustaining this type of interest over time is also dependent on external support.
3. *Emerging personal (individual) interest* is characterized by positive emotions, advanced knowledge, as well as a positive assessment of the domain of interest and the types of activities that are associated with it. A consequence of this type of interest is that students typically wish to advance their knowledge in that domain, and utilize self-directed learning methods to this end, yet are to some degree still reliant on external support to guide their efforts.
4. *Well-developed personal (individual) interest* is also characterized by positive emotions, extensive knowledge in that domain, an even more positive assessment of the value of this domain, and the demonstration of highly autonomous learning activities. Although not required at this level of interest, even students with fully developed personal interest can benefit from external support, for instance, through apprenticeship or advice from experts.

According to this model, a student must first progress through one phase of interest before proceeding to the subsequent phase. As such, it is possible that some students may not progress to more advanced phases of personal interest, resulting in interest declines, due to insufficient external support.

Over the course of childhood and adolescence, interest differentiation is considered necessary for the optimal development of identity and one's self (see Krapp, 2002). One consequence of this increasing differentiation in students' interest — that initially starts with high interest in almost all domains — is that by developing interests in increasingly specific areas, one's interest in other domains tends to decrease. As a result, studies typically find an overall decline in students' *average* interest levels, for example in specific school subjects, from the beginning of elementary school until the latter stages of secondary school. Thus, one of the causes behind this often lamented "loss of motivation" in students can be traced to students developing more refined interests in specific topics, some of which may be academic in nature (e.g., sciences or mathematics) and others not (e.g., extra-curricular sports).

Again, whereas a decline in interest for all academic subjects is commonly reported in longitudinal empirical research (e.g., Frenzel, Götz, Pekrun, & Watt, 2010; Gottfried, Fleming, & Gottfried, 2001), this trend is likely best understood as students becoming more selective in their academic pursuits, as opposed to being unmotivated. Similar to other interindividual differences in other motivational variables (e.g., achievement motives, self-concepts, interests, goal orientations), this pattern of development is assumed to become more stable and increasingly irreversible with age (Heckhausen & Heckhausen, 2008).

2.3.2. Environmental Influences on Motivation

Evidence for the significance of environmental influences has been consistently provided by studies in which specific aspects of students' social environment (i.e., parents, peers, teachers; instructional methods) are systematically evaluated. For instance, studies that have analyzed parental assumptions pertaining to the abilities of their children demonstrate that they are closely correlated with the self-concepts of their children. These studies also show the effect of students' prior achievements on their academic self-concept is actually considerably due to what parents think about their children's competencies (e.g., Frome & Eccles, 1998). This suggests that parents play a significant role in how students interpret their scholastic achievements, and that they can substantially influence the motivation of their children by the beliefs they express concerning the child's academic abilities. As can be expected, attributional processes are typically involved in such parent–child interactions, on the part of both the parent (for the child's performance) and the child (as influenced by attributions implied or stated by parents).

Evidence for this type of conformity has also been observed for other types of motivational variables. For instance, Friedel, Cortina, Turner, and Midgley (2007) showed that the goal orientations of students corresponded with the perceived goal orientations of their parents (and their teachers). More specifically, their research indicated that students who perceived their parents as having a strong mastery goal orientation also demonstrated a mastery orientation themself that, in turn, was associated with higher levels of self-efficacy. In addition to parental beliefs and values, a students' family structure is also important for their motivation, as evidenced by lower average levels of academic performance and motivation among students from families having a lower socioeconomic status (see Grolnick, Friendly, & Bellas, 2009). However, it should be noted that socioeconomic status typically does not have a direct impact on children's motivational patterns, but rather it is the resulting impaired quality of the learning environment within the family unit (e.g., educational materials, assistance with homework, parental expectations, reinforcement for study behaviors) that leads to motivational problems.

In addition to parental influences, another major influence on the motivation of students is, of course, their teachers in terms of their feedback and instructional behavior, as discussed in greater detail in the following sections. Findings from several studies indicate that various aspects of learning and achievement motivation

in students are found to differ substantially from one classroom to the next, with such differences in student motivation often being traced back to differences in how the teachers interact with the students and the types of teaching methods employed (e.g., Meece et al., 2006a).

Peer groups and friends also play an important role in the development of learning and achievement motivation in students. In this regard, studies have consistently demonstrated that students belonging to the same network of peers tend to display quite similar motivation and performance levels, and further, that these similarities often intensify the longer one associates with a peer group (for an overview, see Schunk et al., 2008). Whereas the effects of some peer groups may be positive in terms of having advantageous motivational characteristics (e.g., high academic standards), the effects of peer groups on students' motivation can also be negative (e.g., pressure to engage in unrelated activities or underperform in order to fit in). Thus, contrary to the common assumption that the effect of peers on students' motivation are uniformly negative, studies also highlight the potential benefits of a motivating peer group on persistence and study habits. Whereas the motivational similarities among members of peer groups can be, on the one hand, explained by socialization within the groups (e.g., social learning, forming and maintaining group norms and values), selection effects are, on the other hand, also responsible as students with similar motivational profiles tend to seek each other out.

Finally, the gender differences that exist in various components of learning and achievement motivation can be interpreted as indicators of the influence of socialization. These differences are generally domain-specific and correspond to culturally conveyed gender role stereotypes (see overviews in Meece, Glienke, & Burg, 2006b; Ziegler, Heller, Schober, & Dresel, 2006). More specifically, concerning the subject areas of mathematics and the natural sciences, girls are less interested, have lower expectations of success, and lower self-concepts than boys. In verbal areas, evidence suggests contradictory, although weaker, differences in these constructs favoring girls over boys.

Given that gender differences in cognitive abilities are either slight or non-existent, it stands to reason that socialization regarding gender stereotypes may be partially responsible for observed gender differences in academic motivation and achievement (see Ziegler et al., 2006). Generally speaking, the sources of these influences need to be sought out for all instances of socialization, particularly those located in the school and in the classroom. This is made clear, for instance, by findings showing vastly different degrees of gender differences in achievement motivation and scholastic achievement in different classrooms (Dresel, Stöger, & Ziegler, 2006).

The following sections more specifically address the effects of teachers, the classroom structure, and reference groups as have been previously discussed in this chapter.

Teacher expectations. Beyond the academic expectations of students and their parents, teachers also develop specific *interpersonal expectations* with regard to the ability levels as well as the ideal learning and achievement behaviors for individual students in their classes.

Definition

Interpersonal expectations refer to future-oriented assumptions pertaining to behaviors, competencies, and other characteristics of others.

First, it is important to distinguish *interpersonal* expectations (expectations of others) from *intrapersonal* expectations (expectations for oneself) as was previously introduced in Section 2.2.4. Extensive research indicates that the perceptions and assessments teachers make pertaining to their students, as well as the resulting patterns of communication and the instructional behaviors, are influenced by the expectations they have toward these students. This, in turn, has an influence on the motivation, learning behavior, and achievement of the students. In fact, the effects of teachers' expectations, as demonstrated by their teaching behaviors and interactions with students, on students' behavior can result in so-called "self-fulfilling prophecies," or in other words, lead students to perform either better or worse so as to more closely align with the teacher's expectations.

An early study by Rosenthal and Jacobson (1968) introduced the term *Pygmalion Effect* (named after a figure from Greek mythology; see also the play by G. B. Shaw) to describe the self-fulfilling effect of (positive) expectations and sparked a long-standing research interest in self-fulfilling expectations among teachers. In this study, elementary school teachers were incorrectly led to believe that 20% of their pupils should be expected to demonstrate above average achievement based on the fabricated results of intelligence tests. In fact, these preselected students were selected purely at random with no consideration of their intelligence test scores. One year later, however, these randomly nominated children tended to perform better on tests of reading and intelligence than their classmates who had not been identified as potential high achievers. These findings were attributed to the effects of differential teacher expectations and self-fulfilling prophecies among teachers who believed certain students were more capable of success, behaved differently toward these students, and generally perceived unique improvements in these students relative to their peers. Despite the popular and intriguing nature of these findings, they were nonetheless subject to widespread criticism and could not always be replicated. At any rate, subsequent research has been able to show that teacher expectations are indeed relevant and capable of influencing students' motivation, learning behaviors, and achievement outcomes (for an overview, see Jussim & Harber, 2005).

Building on these findings, psychological research has worked intensely to determine both how teacher expectations are generated and the effects they have on how teachers interact with students (see Jussim & Harber, 2005). Overall, a very important finding of research in this area is that the expectations a teacher has for their students can have a significant impact on their students' academic motivation. On the negative side, teachers' expectations can be particularly detrimental if they entail unreasonably low assumptions of a student's abilities or chances of success, or if they are rigid in nature. Positive teacher expectations, on the other hand, can have beneficial effects on students, for instance on goal orientations and interest levels, and especially for students who are performing poorly or are from families with a low socioeconomic status who may otherwise doubt their ability to learn and succeed (see Jussim, Robustelli, & Cain, 2009).

Classroom goal structures. Another comprehensive approach to describe the motivational effects of classroom instruction is derived from goal orientation theory (see Section 2.2.6) and is referred to as *classroom goal structures*. According to this perspective, it is assumed that various instructional aspects combine to influence the degree to which students believe mastery and/or performance goals are being encouraged in class, in other words, the degree to which they perceive a *classroom mastery goal structure* and/or a *classroom performance goal structure*. It is assumed here that a mastery goal structure is characterized by a strong focus on understanding the learning objectives, highlighting individual opportunities for improvement, the application of individual reference norms, viewing errors as learning opportunities, as well as the encouragement of cooperation and autonomy in the learning process. Performance goal structures are represented by an explicit focus on assessment and achievement, the application of social reference norms, public feedback on individual evaluations, preferential treatment of high-achieving students, as well as the use of instructional methods that encourage competition (see Meece et al., 2006a). As a result of encouraging specific types of learning activities and classroom interactions, classroom goal structures have been found to exert a significant influence on the personal achievement goals of students as well as the quality of the learning behavior they exhibit (see Ames, 1992; Dresel, Berner, & Fasching, 2011; Meece et al., 2006a; Murayama & Elliot, 2009). Moreover, it is also assumed that the goals promoted in specific learning situations can, in some cases, supplant or replace the initial personal goal orientations held by students (see Ames, 1992; Meece et al., 2006a). For instance, it would be highly unlikely for a student with a strong mastery goal orientation to maintain their focus on learning and personal enrichment when bombarded by performance-oriented classroom activities and interactions that instead encourage superficial information processing and elicit detrimental performance emotions such as anxiety or boredom (e.g., through frequent evaluations and assignments requiring rote memorization).

Over the past 20 years, a considerable number of studies have explored the effects of perceived classroom goal structures on motivation and performance in students (see Meece et al., 2006a). These studies have consistently shown that a strong classroom mastery goal structure is associated with favorable effects on motivation and learning, whereas a classroom focus on performance goals produces detrimental effects in these same areas. As to the question of which specific characteristics of classroom instruction are most representative of a mastery or performance goal structure, and further, which classroom elements are most predictive of student development, relatively few studies beyond those evaluating the effects on students' perceptions have been conducted (e.g., studies assessing observational data and teachers' perspectives are lacking). Nonetheless, the research literature to date indicates that it is the interplay among several instructional dimensions that characterizes a classroom as having either a mastery or performance goal structure (see Section 2.4.2 for more on promoting adaptive goal structures in class).

Reference groups. As previously discussed in Section 2.2.8, social comparisons with a particular reference group have significant implications for a student's self-concept in a given subject area, as well as related motivational variables, due

to the use of a social reference norm. Changes in one's reference group, particularly when transitioning from elementary to secondary school (which in many countries involves streaming or "tracking" students into specific classes based on achievement level), can impact students' motivation. In fact, these changes can lead to counterintuitive reference group effects with regard to students' self-concept of ability (see Marsh, 1987, 2003). More specifically, for high-achieving students, the transition from elementary school into a high-achieving track in secondary school is typically not associated with improvements in one's self-concept, but instead with a deterioration in academic and subject-specific self-concepts. This reaction is commonly attributed to these students now finding themselves surrounded by only high-achieving students, resulting in their relative performance in the class being lower, on average, than in a more inclusive classroom setting. Conversely, the self-concepts of the lower-achieving students often rise when they enter lower-achieving tracks in secondary school, as their performance relative to their classmates tends to be higher, on average, than was the case in elementary school. In the research literature, this reference group effect is commonly referred to as the "*big-fish-little-pond effect*": A big fish in a little pond (relatively high-achieving individual in a rather poorly achieving group) becomes a small fish when it is displaced into a lake (high-achieving classroom). These types of reference group effects are not only relevant for transitions within the school system, but also for crossovers into other types of educational institutions (e.g., the transition to higher education or employment).

In addition to possible negative effects of a high-achieving reference group on the self-concepts of students, as captured by the big-fish-little-pond effect, positive although significantly weaker effects can also be generated by joining a more prestigious group. The so-called "*basking in reflected glory effect*" (also referred to as the assimilation, labeling, or identification effect) suggests that new membership in a higher status, positively selective group (e.g., being selected to participate in college preparatory courses, classes for the gifted) can have positive effects on a students' academic self-concept and self-esteem, whereas membership in low-prestige, negatively selective groups (e.g., remedial classes) can have negative effects on these self-evaluations (e.g., Liu, Wang, & Parkins, 2005).

Conclusion

The development of fundamental aspects of learning and achievement motivation can be traced back to early childhood. Particularly large changes in motivation accompany the onset of formal education, the elementary school years, and the transition into secondary school. Environmental influences and socialization play a significant role in the development of students' motivation. For example, the expectations of teachers regarding students' abilities and the characteristics of a student's reference group are of particular relevance here. Finally, the concept of classroom goal structures has proven useful for describing, explaining, and optimizing the influences of classroom instruction on motivation in school-age children.

2.4. Fostering Learning and Achievement Motivation in Students

In order to ensure learning, sufficient motivation must be present on the part of the learner — effective learning is only possible when students are adequately motivated to engage in learning activities. At the same time, it is not reasonable to assume that all students will be adequately motivated by the same learning objectives and activities. Often, a student may show absolutely no interest in the learning objective outlined by the teacher, may not care about improving their competencies, or cannot be convinced that they will be able to master class content. Following from the process of interest differentiation that occurs during childhood and adolescence (Section 2.3.1), it is in fact developmentally appropriate and expected for students to not be equally motivated to learn and succeed in every subject domains.

Nonetheless, it remains the responsibility of the teacher to attempt to instill a sufficiently positive subjective valuing of the learning objectives and activities as well as a sense of confidence in their students that they can succeed, in order to enable students to explore all their options as well as maximize their potential. Given the instructional and developmental importance of providing students adequate opportunities to become and stay motivated in class, promoting student motivation has for decades been considered one of the most important, and most difficult, tasks in the teaching profession (see Klauer, 1985). Moreover, considering that many students also face serious motivational problems, it also falls on the instructor to occasionally utilize more specific and directed motivational scaffolding techniques to help specific at-risk students overcome these challenges and achieve their academic potential.

In the following sections, various teaching methods and intervention programs for promoting and sustaining motivation in students are described, beginning with the situation-related specific ways in which the subjective importance of a specific learning objective or learning activity can be highlighted (value components). More general instructional principles found to encourage and maintain student motivation are then discussed, followed by information on motivational training programs that can be proactively used by teachers to protect against motivation declines, or to address serious motivational problems in specific at-risk students.

2.4.1. Promoting Subjective Valuing of the Learning Objectives and Activities

When considering how to best motivate students, a primary goal is to address students' situational motivation to learning class content and the learning task at hand. To this end, it is important for teachers, especially when introducing a new topic, to establish a relationship between the material being taught and the everyday life experiences of their students in order to emphasize the relevance of the material. The point here is not only to establish situational interest and other situation-related aspects of the value components, but also to avoid detrimental emotions, such as boredom (see Chapter 1). This form of motivation is primarily directed toward

the present learning objectives and, in most cases, the effects are short term in nature. Furthermore, teaching techniques that promote situational value and interest are primarily relevant to direct instructional methods (teacher-centered, top-down approaches) that tend to be less motivating than other more collaborative forms of instruction involving discovery, problem-based, or cooperative learning activities (student-centered, bottom-up approaches). In addition to the previously mentioned associations with everyday life experiences, there are a number of other ways to encourage positive assessments of learning objectives and learning activities, as outlined below (adapted from Schiefele, 2009).

Implications for Practice: Promoting Value

- Clearly describing the rationale behind the learning objective
- Explaining the underlying purpose and context of the learning activities
- Expressing the teacher's own interests related to the learning objective
- Highlighting the practical applications and real-world relevance of the learning content
- Emphasizing the emotional aspects of the learning material
- Connecting the learning material to the specific interests of the students
- Using diverse types of instructional methods and classroom activities
- Creating cognitive conflicts (in which new information contradicts prior knowledge)

Without a doubt, such measures are both reasonable and necessary in order to motivate a student to pursue assigned learning objectives. However, these approaches do not typically leave a lasting positive influence on learning and achievement motivation. Concerning this issue, two types of misconceptions are important to address.

Misconception 1: It is sufficient to try to motivate students mainly during the first few minutes of teaching. The introduction phase of a course of instruction is indeed important for fostering student motivation in establishing an initial foundation of situation-specific motivation (in research on interest, this is referred to as the *catch component*). However, in order to retain student motivation and promote learning quality throughout the lesson (especially as subject matter difficulty increases), it is necessary to motivate learners not only at the start of the class or exercise, but throughout the entire course of instruction. For instance, this may involve repeatedly incorporating the initial attention-grabbing exercise throughout the class, or continually emphasizing the real-world or personal relevance of the subject matter (*hold components*). In high-quality instructional settings, motivating students happens continuously throughout the learning process and is not limited to the "opening act" (for more on "catch and hold" techniques, see Durik & Harackiewicz, 2007).

Misconception 2: Trying to encourage students to value learning objectives and activities is sufficient. In the previous sections, it is made clear that students' motivation to learn encompasses much more than simply valuing of a learning task or having situational interest in a learning activity. In addition to these value-related elements, it has consistently been found that the assumptions students have concerning their academic and intellectual abilities, as well as related beliefs regarding the probability of successfully completing learning tasks, have a great deal of influence over their learning behaviors. In fact, one counterintuitive finding related to students' values is that downgrading the perceived importance of a subject area or learning activity can actually have short-term *protective* effects on their self-esteem. For example, a student may believe they have limited mathematical skills and subsequently refer to math as "stupid," "boring," or "unimportant" and thereby prevent their low mathematics self-concept from having further negative effects on their self-esteem (Harter, 2006). Indeed, devaluing and having low interest in learning activities are, in many cases, caused by poor ability self-concepts and low success expectations (see Eccles, 1983). These underlying factors can be easily overlooked by teachers, however, particularly when students' statements concerning the limited value of academic tasks are more common. This also drives home the point that the motivation of students must always involve a sufficient expectation of success.

Considering these two common misconceptions, it should be apparent that encouraging students to value learning is frequently not sufficient to address all aspects of student motivation or have it persist over time. In light of the previous sections of this chapter, what else can teachers do to have a longer-term impact on motivation and engagement in their students? How can students' values as well as their expectancies for success be addressed in order to more effectively elicit and maintain students' motivation over time?

The following section introduces more extensive principles for how to motivate students both comprehensively and continually during the learning process.

2.4.2. Principles for Encouraging Student Motivation

Fostering interest and self-determined motivation. A fundamental set of instructional principles concerning how to encourage student motivation can be derived from both self-determination theory and interest theory (Krapp, 2005; Ryan & Deci, 2000). As outlined in Section 2.2.5, self-determination theory suggests that the necessary preconditions for the development of intrinsic motivation and interest are the fulfillment of the needs for autonomy, competence, and relatedness. Accordingly, it follows that instructional techniques that best facilitate motivation in students are those that consistently satisfy these three needs. Thus, it is commonly found that teachers who consistently utilize instructional methods that encourage not only appreciation of the subject matter, but also provide opportunities for students to experience themselves as self-determined and

competent, and promote positive teacher–student and peer relationships, tend to have more motivated and successful students. The box below suggests various types of teaching strategies that address each of these important psychological needs (adapted from Schiefele, 2009).

Implications for Practice: Promoting Self-Determination

Facilitating the need for autonomy:
- Student participation in selecting learning goals and activities
- Implementing classroom activities that afford students opportunities to use various skills and engage in self-regulated learning
- Providing students opportunities for self-assessment
- Joint negotiation of behavioral regulations with students

Facilitating the need for competence:
- Frequent positive feedback
- Clear, structured, and intelligible instructions
- Adjusting task difficulty in accordance with students' ability levels
- Supporting specific students when difficulties are encountered
- Implementing learning activities that require a variety of skills (not simply skills that are directly relevant to the subject area or learning task)

Facilitating the need for relatedness:
- Implementing activities that promote cooperative learning between students
- Building a partnership between teachers and students in which the learning progress of students is conveyed as personally important to their teachers

Evidence from empirical studies has demonstrated that these techniques can be effectively used to increase students' interest levels (for an overview, see Schiefele, 2009). Furthermore, these strategies afford teachers meaningful opportunities to foster the development of their students by allowing them to move away from controlled motivation in their students (external regulation; see Chapter 3) and instead promote autonomous (self-regulated) forms of motivation (e.g., fully intrinsic or autonomous extrinsic motivation; see Section 2.2.5). Noteworthy here is the fact that these measures serve to not only encourage motivation and interest in students, but are also consistent with the core principles underlying high-quality instructional practices that are cognitively stimulating and optimize learning (e.g., Hattie, 2009). Finally, it is important to note that these teaching techniques, as well as those described in the following section, do not involve "pushing" or pressuring students to learn and succeed — which could represent a third common misconception about how to best motivate students.

Establishing a beneficial classroom goal structure. A second, and even more varied cluster of instructional principles for how to motivate students can be derived from achievement goal theory. As explained in Section 2.3.2, the learning and

achievement motivation of students can be positively influenced through the promotion of certain types of classroom goal structures. In order to organize the various relevant classroom characteristics and instructional techniques that constitute an effective classroom goal structure, a classification framework outlined by Epstein (1989) has proven particularly useful (see also Ames, 1992). In this model, the relevant aspects or dimensions of classroom instruction include the selection of tasks and learning activities, the distribution of responsibility, authority, and autonomy, the recognition and evaluation of students and their achievements, the formation of learning groups, as well as the allocation of learning time. The acronym used for these dimensions is TARGET (task, authority, recognition, grouping, evaluation, time), with specific teaching methods corresponding to each of the six dimensions described in Table 2.4 (notice that most of the interest-enhancing methods also appear in this list). The TARGET model provides a structure for efforts to promote advantageous mastery goal structures in the classroom, as well as reduce performance goal structures.

Although empirical research regarding the relationships between teacher behavior, classroom goal structures, and students' motivation to learn is ongoing, it is important to note that research based on goal orientation theory has contributed to clear set of differentiated and sensible instructional principles for promoting motivation in the classroom. Overall, the overarching goal should be to prepare and deliver classes, as well as interact informally with students, in such a way that mastery goals take center stage, and performance goals function mainly in the background. Table 2.4 can thus be viewed as a useful checklist for teachers to assist in acknowledging as well as encouraging effective goal structures as part of classroom instruction.

2.4.3. Motivational Intervention Programs

As mentioned in the introduction to Section 2.4, we need to differentiate between general instructional approaches that encourage overall student motivation and specific programs targeting students with serious motivational problems. Although the measures described above that tend to focus on the value component of motivation can — if utilized consistently and correctly — help teachers to encourage motivation and academic development in their students, they may not be focused or explicit enough to optimally assist students with significant motivational difficulties (e.g., unrealistically low estimations of their academic ability). A motivational training program is required when serious motivational problems are evident, particularly those that manifest themselves in the following: detrimental choices (choosing either very simple or very difficult tasks), low levels of persistence, poor quality learning, performance that is well below expectations, a systematic underestimation of one's abilities, very low expectancies for success, devaluating of learning, detrimental attributions, and/or symptoms of learned helplessness. In these cases, motivational training programs have been found to facilitate engagement,

Table 2.4: Dimensions and associated teaching techniques of the TARGET model (Epstein, 1989).

Dimension	Teaching techniques for promoting optimal classroom goal structures
Task	• Using diverse, varied, personally relevant, meaningful, emotionally rich, and therefore interesting tasks • Assigning individually challenging tasks that can be accomplished with effort • Structuring learning activities into subgoals that allow students to monitor their progress
Authority	• Emphasizing student responsibility for personal learning and classroom cooperation in a developmentally appropriate manner • Providing opportunities to choose learning goals, activities, and materials in a manner consistent with the self-regulatory abilities of individual students (see Chapter 3) • Providing opportunities to make decisions and for leadership
Recognition	• Acknowledging effort through praise, positive emotional reactions, rewards, and other forms of reinforcement • Conveying the belief that effort leads to the improvement of competencies • Acknowledging individual improvement • No preferential treatment for high-performing students • Recognizing the understanding (rather than memorization) of content • Recognizing the validity of individual pathways to solutions • Creating a classroom climate in which errors are understood as opportunities for learning and not as a sign of limited competence
Grouping	• Use of cooperative teaching methods • Creating heterogeneous groups with regard to achievement levels to promote the collaborative attainment of learning goals • Fostering a cooperative as opposed to competitive classroom climate • Teaching the competencies for effective group work
Evaluation	• Using individual and criterion reference norms in evaluating task performance • Avoiding social reference norms

Table 2.4: (*Continued*)

Dimension	Teaching techniques for promoting optimal classroom goal structures
	• Avoiding social comparisons • Avoiding competitive learning and achievement activities wherever possible • Refraining from public performance feedback (e.g., when returning tests) wherever possible • Providing private feedback to students (oral and written)
Time	• Provide sufficient time to complete a task (on tests and class activities) • Adjust the learning time available to low-achieving students (and plan extra tasks for the high-achievers if necessary) • Provide opportunities for students to plan the time allotted for their learning activities and to schedule self-tests

learning, and achievement outcomes, thereby helping these struggling students to reach their academic potential.

Principles of motivational programs. The field of educational psychology has for years developed and evaluated the effectiveness of motivational intervention programs for mitigating the aforementioned motivational deficits in at-risk students (for an overview, see Schunk et al., 2008). In addition to interventions for already struggling students, these types of programs have also been used in a preventative manner to avert potential motivation declines in students with relevant risk characteristics. For example, such programs have been used to assist students following the transition from elementary into secondary school (to mitigate the big-fish-little-pond effect; see Section 2.3.2) or by teachers when introducing a new and particularly difficult subject to their class.

Most motivational training programs that target students facing specific motivational problems place their emphasis on expectancy components of motivation and related beliefs in students. More specifically, their primary aim is typically to improve students' academic self-concepts and expectancies for success, and to alleviate the symptoms of learned helplessness. To this end, these programs tend to utilize one or more of the following training elements:

- Encouraging adaptive causal attributions for academic success and failure
- Promoting an individual reference norm for evaluating achievement outcomes
- Fostering the selection of challenging yet realistic task difficulty levels
- Promoting an implicit, incremental theory of intelligence (abilities are modifiable, not static)

For example, Rheinberg and Krug (2005) proposed and evaluated a number of effective motivational programs that promote individual reference norms in performance assessments, foster the selection of appropriate task difficulty levels for themselves, and encourage realistic causal explanations (a brief description can be found in Rheinberg et al., 2000). Results showed that especially for low-achieving students, the adoption of individual reference norms led mainly to a reduction in their expressed fear of failure and test anxiety, as well as improvements in their academic self-concept. These findings illustrate that encouraging the utilization of individual reference norms can be an effective way of helping at-risk students to maintain their motivation in the classroom.

In addition to reference norm approaches, other motivational intervention programs based directly on attribution theory have been found to effectively promote academic motivation and achievement in at-risk students. In these attribution-based approaches, students are encouraged to reflect on the causal attributions for their success and failure experiences, as well as consider the implications of adopting more motivating causal attributions (and conversely, avoiding maladaptive attributions) in terms of their subsequent learning and achievement (see Graham & Weiner, 2011, for an overview). As outlined in greater detail below, one particular long-standing intervention technique referred to as *attributional retraining* represents a prototypical example of this type of program.

Motivational intervention programs are often used in combination with the knowledge or skill development activities pertaining to a specific topic (e.g., mathematics), or with training exercises aimed at improving students' use of learning strategies (e.g., Dresel & Haugwitz, 2008). The advantage here is that it is not only the desire, or "want" component that is improved, but also the ability, or "can" component. By combining these two elements, interventions can exert a more powerful positive influence on student development (see Fries, 2002).

Attributional retraining. Attributional retraining programs are designed to improve student development by attempting to modify the causal explanations (attributions) they choose to explain to why they perform the way they do. In this process, the first goal is to replace attributions that are motivationally detrimental with attributions that are more conducive to motivation (to "reattribute" their performance). This means that realistic causal explanations should take the place of unrealistic attributions, which are frequently reflected in pessimistic perceptions of one's own competence levels and perceived courses of action. In addition to its use in the prevention of motivational problems, attributional retraining is also effective in helping students who already demonstrate a consistent underestimation of their abilities, overlook potential opportunities to improve their learning and achievement, or demonstrate symptoms of learned helplessness (e.g., "No matter how much I study, I will never understand this material"). Typically, attributional retaining methods tend to encourage internal causes (primarily ability and effort). However, the types of attributions recommended after failure are those that are personally controllable and/or can change over time (mainly, lack of effort). In Section 2.2.9, a

case was made for how students' causal attributions for their success and failure at school are directly related to other motivational constructs such as students' self-concepts in specific academic domains, as well as their emotions surrounding learning activities. Based on this premise, the long-term goal of attributional retraining is to produce improvements in motivational and emotion variables (e.g., perceived competence, expectations; attribution-based emotions such as hope) and, in turn, learning behavior and achievement levels.

Given the straightforward nature of attributional retraining, its use is not at all limited to researchers, counselors, or school psychologists, but can be readily incorporated by teachers into the feedback provided to students following performance evaluations, or into regular classroom content and activities to proactively inoculate students against maladaptive explanations for success and failure (e.g., Heller & Ziegler, 2001).

The most important technique based on attributional retraining principles that can be used by teachers to improve the motivation of their students is to provide feedback on students' successes or failures that conveys desirable causal attributions (*attributional feedback*). These comments can be made in writing (when returning written submissions such as pop quizzes, class exams, essays, practice exercises, or homework), or verbally either during class (e.g., through praise or reprimands) or after class (e.g., candid expressions of disappointment or explicit statements indicating improvements are possible). In light of the negative side effects of providing public performance feedback in the classroom (e.g., social comparisons, jealousy), verbal forms of attributional feedback should be used carefully and judiciously, particularly when provided spontaneously by teachers during classroom instruction, given that prior consideration of its social appropriateness and plausibility is required in order to minimize adverse consequences. Table 2.5 outlines a range of sample comments by teachers in which optimal attributions for responding to success and failure are encouraged.

The effectiveness of attributional retraining has been empirically demonstrated in a substantial research literature on this intervention technique (for overviews, see Graham & Weiner, 2011; Perry, Hall, & Ruthig, 2007; Schunk et al., 2008). This research suggests, however, that individual and small group programs that are conducted external to classroom instruction tend to be more effective than intervention programs that are integrated into the classroom and administered by students' regular teachers. Thus, in contrast to formalized efforts to train teachers to use attributional techniques with their students, it may be more productive to focus instead on how teachers convey attributional information to their students in more subtle and informal ways (e.g., indicating insufficient effort in written feedback, not providing unsolicited assistance). Nevertheless, it is important to recognize that teachers are indeed capable of improving attributions and motivation in their students through attributional feedback.

Concerning externally administered intervention programs, longitudinal field studies with college students have repeatedly found attributional retraining methods encouraging unstable and personally controllable attributions for failure to help students do better academically, and also be more successful in job

Table 2.5: Examples of attributional feedback from teachers (adapted from Dresel, 2004; see also Dresel & Haugwitz, 2006).

Attribution category	Examples
Success	
Ability	"You obviously write very well." "It's easy to see that you know what you're doing."
Effort	"It's apparent that you've spent a great deal of time studying." "You succeeded because that you focused on your work."
Strategy	"Summarizing each paragraph in a single sentence really paid off." "You really took the right approach for this task."
Failure	
Effort	"You didn't quite put in enough effort." "I know you can try harder."
Strategy	"Solving the more difficult problems in a step-by-step way on scrap paper will help you solve them more easily." "If you have problems remembering the vocabulary words, try to learn just a few words at a time, and only move on when you really know them."
Task difficulty	"These exercises were difficult for everyone." "Perhaps the problems I chose for the test were too tough."
Bad luck	"This can happen to anyone." "Sometimes it's just bad luck."

interviews, particularly those at-risk of demotivation and poor performance due to the use of maladaptive learning strategies (e.g., Hall, Hladkyj, Perry, & Ruthig, 2004; Hall et al., 2007), unrealistic competence beliefs (e.g., Hall, Perry, Chipperfield, Clifton, & Haynes, 2006), or low self-esteem (e.g., Hall et al., 2011). Findings suggest that addressing attributions for both success and failure experiences is important, and further, that attributions for success should include both effort and ability, with effort-only or ability-only feedback tending to produce ambivalent effects (see Dresel & Haugwitz, 2006). In fact, a study conducted by Dresel and Ziegler (2006), in which the effects of computer-based attributional feedback as incorporated into mathematics instructional software were evaluated, found the most effective type of attributional feedback after success was to first provide statements acknowledging the student's *effort*, then replacing effort feedback with statements implying *ability* attributions once the student had demonstrated sufficient progress (see also Dresel, 2005). The findings of this study clearly indicate that only this particular sequence of attributional feedback was optimal, likely because it enabled students to interpret their academic abilities as resulting from the efforts they invested in learning, which is consistent with related research showing students who hold implicit personal theories that their competencies are modifiable to be more highly motivated (see Section 2.2.8).

Conclusion

A critical and ongoing responsibility for teachers is to ensure their students stay motivated throughout the learning process. This task is not limited to the first few minutes of class and involves more than encouraging students to see the value in class content, although these two aspects are indeed important in their own right. In designing classroom activities that help to keep students motivated, principles derived from self-determination theory (meeting students' needs for autonomy, competence, and relatedness) and achievement goal theory (promoting mastery goal structures, minimizing performance goal structures) have proven particularly useful. Motivational programs for assisting students with more serious motivational problems typically adopt expectancy-related approaches. These include intervention programs that promote individual reference norms, being realistic with regard to task difficulty, as well as the explicit encouragement of adaptive attributions for success and failure experiences.

2.5. Teachers in Focus

In recent years, the motivation of *teachers* has received increasing attention in motivation research alongside the predominant research focus on the motivation of students. In addition to commonly heard sentiments such as "Motivated teachers are effective teachers" or "Students are only as motivated as their teachers," as well as increasing mention of the term *teacher enthusiasm*, the importance of teacher motivation has also been supported by empirical studies (for an overview, see Schunk et al., 2008). On closer inspection, research in fact suggests that the phenomenon of teacher motivation is more complicated than is implied by one-dimensional concepts like general enthusiasm, with studies indicating that motivation in teachers, not unlike in their students, can be differentiated according to both quantitative ("How motivated are you?") and qualitative elements ("What are you motivated to do and why?"). Thus, it is clear that a differentiated consideration of several components of teacher motivation is required.

2.5.1. Expectancy and Value Components of Teacher Motivation

In theoretical models of teacher motivation, the effects of motivation-related beliefs and behaviors in teachers are primarily evaluated in terms of achievement motivation and, for the most part, focus mainly on instructional activities in the classroom that are most successful (e.g. de Jesus & Lens, 2005). Similarly, following from the research tradition in which student motivation is understood to be based primarily on expectancy and value components, these two motivational elements are also typically incorporated into theoretical perspectives on motivation in teachers.

With regard to expectancy components, most of the studies conducted on teacher motivation have explored the *self-efficacy expectations of teachers*, namely the degree to which teachers see themselves as capable of mastering pedagogically challenging situations through their own actions. A variety of empirical studies have demonstrated that higher self-efficacy expectations among teachers correspond to a more favorable classroom climate, more comprehensive support behavior, and better achievement in their students (see Woolfolk Hoy, Hoy, & Davis, 2009). Concerning the personal psychological and physiological benefits of teacher self-efficacy, other studies also show higher self-efficacy in teachers to predict lower levels of burnout, better physical health, as well as higher job satisfaction in teachers (e.g., Caprara, Barbaranelli, Steca, & Malone, 2006; Schwerdtfeger, Konermann, & Schoenhofen, 2008; Skaalvik & Skaalvik, 2010).

Turning to the value components of teacher motivation, studies have examined teachers' intrinsic versus extrinsic (autonomous vs. controlled extrinsic) motivation in the employment context, teachers' interest in classroom instruction and the subject of instruction, as well as goal orientations and the previously mentioned concept of teacher enthusiasm (e.g., Hanfstingl, Andreitz, Müller, & Thomas, 2010; Long & Woolfolk Hoy, 2006; Nitsche, Dickhäuser, Fasching, & Dresel, 2011; Pelletier, Séguin-Lévesque, & Legault, 2002). Overall, findings from research in this field suggest that teachers who demonstrate more self-determined and intrinsic motivation tend to provide better support and opportunities for autonomy in their students, and are also more effective in promoting students' motivation for learning and achievement. Furthermore, recent research has begun to explore the types and effects of goals that teachers pursue in their profession as informed by achievement goal theory (see Section 2.2.6). However, this research also shows the conceptual evolution of our understanding of motivation in teachers such that, in addition to achievement motivation in the strictest sense, learning and work-avoidance goals are also considered, thus reflecting a broader conceptualization of the value components of motivation in teachers. Given the predominance of research on achievement goal orientations in students, research in which this theoretical model is applied to how teachers approach classroom instruction and student development is highlighted in the final section of this chapter.

2.5.2. Goal Orientations of Teachers

In applying the concept of goal orientations to better describe and explain the experiences and behavior of teachers in the classroom, it is acknowledged that, similar to their students, teachers are faced with various types of performance demands, and that their teaching activities are indeed carried out in social contexts in which their performance is consistently evaluated (e.g., by colleagues, students, parents). More specifically, it has been argued that schools and classrooms represent an "achievement arena" for students as well as teachers (Butler, 2007, p. 242). Consequently, one can assume that teachers, to varying degrees, also pursue the goal of expanding their professional competencies, and to differing degrees may also aim

to conduct their daily occupational activities with the lowest amount of effort possible (often an important consideration given limited resources and time). In accordance with these assumptions, research by Butler (2007) found four qualitatively different types of goal orientations of teachers (see Table 2.6).

Butler (2007) was also able to show these four goal orientations to correspond in specific ways with the experiences and behaviors of teachers. On the one hand, teachers who reported a strong mastery goal orientation tended to interpret help from colleagues as an opportunity to expand their teaching abilities and to make their career more interesting. On the other hand, teachers who adopted an avoidance-performance goal orientation seldom sought help from others and were inclined to perceive it as an indicator of personal teaching deficiencies. As teachers are continually faced with the challenge of maintaining and improving their professional competencies to most effectively help their students learn and succeed, and that the help-seeking could be an effective strategy in this regard, a strong mastery goal orientation should benefit both new and experienced teachers by encouraging them to use available support services to improve both knowledge and performance in both themselves and their students. Conversely, a strong performance-avoidance goal orientation can put teachers at significant risk of suffering from low levels of perceived competence over the course of their teaching career (see also Fasching, Dresel, Dickhäuser, & Nitsche, 2011; Nitsche et al., 2011).

Research evidence also suggests that the goal orientations adopted by teachers are directly associated with their occupational stress levels (see Chapter 1). As an example, one study by Tönjes, Dickhäuser, and Kröner (2008) showed both a strong performance-avoidance goal orientation and a weak performance-approach goal orientation to correspond with a greater perceived lack of accomplishment among teachers — a critical underlying component of occupational stress — even when the effects of personality characteristics (such as neuroticism) were statistically controlled for.

Finally, findings from recent empirical studies suggest that the occupational goal orientations held by teachers are also significantly correlated with the instructional practices they use in the classroom. For instance, results obtained by Retelsdorf, Butler, Streblow, and Schiefele (2010) indicate that teachers with a high mastery goal orientation tend to more frequently utilize cognitively stimulating teaching methods and instructional techniques that enable all students to master the

Table 2.6: Goal orientations of teachers.

Goal orientation	**Goal content**
Mastery	Increase one's competence as a teacher
Performance approach	Demonstrate one's competence as a teacher
Performance avoidance	Do not show deficits in one's competence as a teacher
Work avoidance	Invest as little effort as possible in one's professional capacity as a teacher

material being covered. Furthermore, this study also found the endorsement of work avoidance goals, as well as performance avoidance goals, to instead be associated with teaching practices in which performance displays and competition are emphasized (see Section 2.4.2). Thus, preliminary findings from studies with teachers parallel those from research with older students in showing a strong orientation toward mastery goals to be most beneficial, and conversely, a preference for performance-avoidance goals to be particularly detrimental for instructional quality and student development in classroom settings.

Conclusion

Motivation in teachers represents an important prerequisite for high-quality classroom instruction and the optimal development of motivation, learning, and achievement in students. Moreover, it also serves an important function in promoting psychological and physical health, as well as the development of instructional competencies in teachers. Emerging research on teacher motivation further suggests that the structure, conditions, and effects associated with both expectancy and value-related motivational components closely parallel those observed over the past several decades with student populations.

Further Reading

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