Motivation

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1.1. Definition

Brief Definition: At the broadest level, motivation can be considered an internal process, state, or force that moves an individual to act (Wigfield et al., 2015). This force is often experienced by the individual as a desire or willingness to engage in a particular activity (e.g., a homework assignment) or pursue a particular goal (e.g., contribute to society).

Elaborated Definition: Although, historically, motivation was understood as deriving from reinforcement patterns, drives, and basic human needs (e.g., Hull, 1943; Maslow, 1955), it is now often viewed from a social cognitive perspective, which focuses more on beliefs, values, and goals as key influencers of motivation (Wigfield et al., 2015). Eccles and Wigfield's expectancy-value model of achievement motivation (Wigfield & Eccles, 2000; Wigfield, Tonks, & Klauda, 2016), which is one of the more prominent theories to take this perspective, posits that the most proximal determinants of students' motivation to engage in an academic task are their beliefs about how well they will do on the task (i.e., their expectancies) and the extent to which they value the task—in terms of interest and enjoyment (i.e., intrinsic value), personal importance (i.e., attainment value), relevance to future plans (utility value), and what they have to give up to engage in the task (i.e., costs). These expectancies and values are themselves influenced by a number of more distal cognitive factors (e.g., ability conceptions, achievement goals, and affective memories), which are in turn shaped by a range of interconnected social factors (e.g., gender roles, stereotypes, parental beliefs).

Expectancies and values are often understood as influencing students' level or *quantity* of motivation in so far as they predict the likelihood that the student will choose to engage in a task or persist when it becomes difficult. However, these constructs (particularly values) can also be understood as influencing the *quality* of students' motivation. By quality we mean the way in which a particular type of motivation is experienced, as well the kind of task engagement or information processing that it facilitates (e.g., convergent vs. divergent processing; Miele & Wigfield, 2014). Although Eccles and Wigfield's expectancy-value model distinguishes between the types of value that underlie students' motivation, it does not focus on the associations between types of value and types of motivation.

These associations are better explained by Deci and Ryan's self-determination theory (SDT; Deci & Ryan, 2000), which posits that when the environment satisfies students' basic needs for autonomy, competence, and relatedness, they are likely to experience tasks as ends in themselves and become intrinsically motivated to engage in them (i.e., for the sake interest or enjoyment). However, when the environment does not satisfy students' basic needs, they are more likely to focus on the outcomes of tasks and become extrinsically motivated to engage in them. A further distinction can be made between

autonomous forms of extrinsic motivation (which emerge when students value the activity because its outcomes are personally meaningful) and controlled forms of extrinsic motivation (which emerge when the student feels compelled to engage in the activity in order to attain a particular outcome). A central tenet of SDT is that students exhibit “deeper engagement and higher quality-learning,” as well as “greater psychological well-being,” when they engage in tasks for autonomous or intrinsic reasons rather than for controlled reasons (Ryan & Deci, 2016, p. 105). Other theories that can be interpreted as distinguishing between qualitatively distinct types of motivations or motivational orientations include achievement goal theory (see Senko, 2016) and regulatory focus theory (see Molden & Rosenzweig, 2016). For deeper discussions of these issues, see Wigfield et al. (2015) and Deci & Ryan (2000).

1.2. Relevance for 2030

Motivation plays a central role in the development of most (if not all) of the competencies included as part of the OECD Education 2030 learning framework. Building nearly any type of explicit competency requires effort and practice and students will only dedicate effort to a task when they are sufficiently motivated to do so. Furthermore, once a competency has been developed, it should not be assumed that students will necessarily apply it in all situations. Competencies that are challenging to apply require that students be motivated to expend a certain level of mental effort (Miele & Wigfield, 2014).

Links to the Framework

- **Attitudes and Values**

Although motivation applies to all aspects of the OECD Education 2030 framework it is best situated within the Attitudes and Values component of the framework. As described above, students’ motivation is strongly influenced by their values and expectancies (see Wigfield et al., 2016).

- **Creating New Value**

In order to innovate and create new value, students must be motivated to think creatively and take an open-minded approach to the completion of novel tasks. Creative thinking may be more closely associated with particular types of motivations (e.g., intrinsic motivation) than with others (e.g., extrinsic motivation), at least in certain contexts and for certain kinds of tasks; however, this is the subject of much debate (see Baas, De Dreu, & Nijstad, 2011; Byron & Khazanchi, 2012; Cerasoli, Nicklin, & Ford, 2014; de Jesus, Rus, Lens, & Imaginario, 2013).

- **Reconciling Tensions and Dilemmas**

In order to synthesize contradictory or incompatible ideas, students must be motivated to expend the effort necessary to think in an integrated manner. Presumably this type of critical-analytic thinking requires greater effort than more superficial modes of thought (Miele & Wigfield, 2014).

- **Taking responsibility**

Reflecting upon and evaluating one’s actions in light of personal and societal goals (i.e., taking responsibility) requires motivation. Even if students possess the skills needed to productively evaluate their intentions and behaviors, we cannot expect them to apply these skills if they are not motivated to do so.

1.3. Impact

Considering that motivation is what moves an individual to act, **it necessarily influences any outcome that involves human choice, effort, or persistence**. Indeed, decades of research have demonstrated that across numerous domains of human functioning, **including education, work, and health**, the quantity and quality of students' motivation substantially impact key outcomes in these areas. Some examples are provided below. Despite the clear impact of motivation across a broad range of human endeavours, the exact nature (positive or negative) and duration (short-term or long-term) of the effects of any particular type of motivation (e.g., intrinsic versus extrinsic) on a specific outcome of interest is a complex matter that requires careful consideration of the numerous methodological, psychological, social, and contextual factors at play in the given environment (e.g., Hulleman, Schrager, Bodmann, & Harackiewicz, 2010). For deeper discussions of these issues, see Cerasoli et al. (2014) and Hulleman et al. (2010).

Examples:

- **Academic outcomes:** A recent meta-analysis showed that autonomous forms of motivation (including intrinsic motivation) are medium to strong predictors of both the quantity and quality of performance in school (Cerasoli et al., 2014).
- **Social outcomes:** In a study by Clary and Orenstein (1991), the extent to which individuals volunteered at a crisis counseling center for altruistic reasons predicted the likelihood that they would complete the expected service term (at least 9 months) at the center. That is, the source of individuals' motivation predicted the extent to which they continued engaged in a prosocial activity.
- **Economic outcomes:** As reported by Lazear (2000), a large glass installation company achieved a 44% increase in output by workers (while maintaining a high level of customer satisfaction) when shifting from an hourly wage pay scheme to a piece-rate scheme, such that workers were paid for the number of glass units they installed. Presumably the change in pay scheme motivated the workers to expend higher levels of effort.
- **Emotional well-being:** A recent meta-analysis showed that, in general, mental health outcomes (such as anxiety and depression) were positively associated with autonomous forms of motivation and negatively associated with controlled forms of motivation (Ng et al., 2012).

1.4. Interrelatedness

As the “Brief Definition” provided above makes clear, motivation serves as both a predictor and/or outcome of nearly all other constructs in the learning framework. Some **examples** of these connections are provided below. Note that the motivational constructs discussed below are not limited to the motivational theories described above.

- **Adaptability/flexibility/adjustment/agility:** In certain contexts, flexible processing and behavior may be more closely associated with particular types of motivations (e.g., a motivation for growth) than with others (e.g., a motivation for security; see Molden & Rosenzweig, 2016).
- **Creativity/creative thinking/inventive thinking:** In certain contexts and for certain kinds of tasks, creative thinking may be more closely associated with

particular types of motivations (e.g., intrinsic motivation) than with others (e.g., extrinsic motivation); however, this is the subject of much debate (see Baas, De Dreu, & Nijstad, 2011; Byron & Khazanchi, 2012; Cerasoli, Nicklin, & Ford, 2014; de Jesus, Rus, Lens, & Imaginario, 2013).

- **Critical thinking skills:** To the extent that critical thinking is effortful (Shehab & Nussbaum, 2015), it presumably requires more motivation than other, more superficial forms of thinking (see Miele & Wigfield, 2014).
- **Curiosity:** Curiosity is considered by some to be an inherently motivational construct. It has been defined as both a “[n]eed for knowledge and information” and as “a motivator behind exploration/exploratory behavior” (Grossnickle, 2016, p. 34).
- **Goal orientation and completion (e.g., grit, persistence):** Goal orientations (e.g., mastery vs. performance; approach vs. avoidance) are inherently motivational constructs in so far as they specify the kinds of outcomes student are likely to pursue (e.g., improving one’s skills vs. outperforming one’s peers) and his or her reasons for pursuing them (e.g., to challenge oneself vs. to appear smart; see Senko, 2016).
- **Growth mind-set:** Individuals who believe that intelligence is malleable (who have a growth mindset) are less likely to withdraw effort and more likely to adopt mastery goals/orientations in the face of challenge or failure than individuals who believe that one’s basic level of intelligence cannot be changed (who have a fixed mindset; see Burnette, O’Boyle, VanEpps, Pollack, & Finkel, 2013).
- **Responsibility (including locus of control):** Representing one’s goals as duties or responsibilities (rather than as ideals or aspirations) can lead students adopt a particular type of motivation (i.e., a motivation for security; see Molden & Rosenzweig, 2016).
- **Self-awareness/self-regulation/self-control:** Researchers from multiple areas of psychology have investigated the role that motivation plays in the self-regulation and -control of behavior, emotion, and cognitive processing. They have also shown increasing interest in motivation as a target, rather than as a predictor, of self-regulation (i.e., in how people regulate their motivational states; Miele & Scholer, 2018; Wolters, 2003).
- **Self-efficacy/positive self-orientation:** Self-efficacy is closely related to the concept of expectancies discussed above and is a “strong predictor of children’s and adults’ persistence, effort, and self-regulation of their achievement activities” (Wigfield et al., 2015, p. 663).

1.5. Malleability

The question of the malleability of motivation touches on two separate but related questions: how does motivation typically develop and change across the life span, and how can we intervene to change motivation when necessary. For detailed discussions of the former question, see Wigfield et al. (2015); for the latter, see Yeager & Walton (2011) and Walton (2014).

Development of and Changes in Motivation across the Life Cycle

Precursors of motivation emerge fairly early in child development. For example, children younger than 22 months show positive emotional reactions when they successfully accomplish a task and negative emotions when they do not, and the strength of these emotional experiences (particularly with respect to winning or losing) increases throughout early childhood (Wigfield et al., 2015). Although young children (ages 2-8) in Western industrialized countries tend to be optimistic about how competent they are at a broad range of skills, this confidence decreases around age 7 or 8 and then again during school transitions, such as the transition from elementary to middle school (age 10 to 11; Eccles et al., 1993). Other predictors of student motivation, such as the subjective value of academic domains and intrinsic motivation, also show declines as children develop (Wigfield et al., 2015). Research suggests that these declines may reflect a shift in instructional practices and academic content whereby school work no longer provides an appropriate level of value or meaning commensurate with children's developing levels of cognitive sophistication, emotional complexity, and diverse life experiences (Wigfield et al., 2015). It is important to note that although there is a general decline in academic motivation amongst Western students from early childhood to adolescence, the specific pattern of change may vary between individuals, groups, and cultures (Wigfield et al., 2015).

Evidence of Malleability of Motivation

Given this general decline in academic motivation, educational researchers have become interested in ways to motivate adolescents and young adults to become more engaged in school-related activities. The extant literature indicates that, fortunately, motivation is malleable and can be reliably enhanced in real-world academic settings and across various age groups through brief interventions that target students' subjective task value, sense of meaning, and beliefs about intelligence (Lazowski & Hulleman, 2015). For example, interventions that require students to consider how an academic task or domain (or even school in general) is relevant to their own lives (Hulleman & Harackiewicz, 2009), to their ability to achieve the kind of future they aspire to (Oyserman, Bybee, & Terry, 2006), or to a self-transcendent purpose (Yeager et al., 2014) can enhance the extent to which students see their schoolwork as valuable, meaningful, and interesting. Furthermore, mindset interventions that teach students that academic ability can improve have been shown to foster adaptive motivations and improve academic performance (Blackwell, Trzesniewski, & Dweck, 2007; Paunesku et al., 2015; Yeager et al., 2016). However, it is critical to recognize that the types of factors that can instill a sense of value, meaning, or optimism may vary in their influence from one group to the next. For example, inviting students to find personal relevance in an academic task or course may provide greater benefits to students from more disadvantaged (versus advantaged) backgrounds (Harackiewicz, Canning, Tibbetts, Priniski, & Hyde, 2016). The planning of any intervention effort must therefore take into account what factors will enable the unique population of interest to fully understand, identify with, and internalize the desired message (Yeager & Walton, 2011; Walton, 2014).

1.6. Measurability

While motivation is sometimes assessed with direct self-report items (e.g., "How motivated are you to do well on this task?"), it is more common to measure motivation indirectly by targeting constructs that are considered strong or reliable predictors of task choice, effort, or persistence, such as competence beliefs, subjective task values, and achievement goals. There are numerous validated self-report questionnaires for assessing

such constructs – in some cases, there are even multiple scales used by different researchers to measure the same construct (e.g., Senko & Dawson, 2017). In addition, researchers will often draw on theory to create their own (unvalidated) self-report measures of motivational constructs for the specific purposes of a given study (see Fulmer & Frijters [2009] for a critique of the field’s reliance on self-report measures). As opposed to measuring predictors of motivation, some researchers instead choose to assess cognitive, affective, or behavioral manifestations of motivation, which are sometimes described in terms of “student engagement.” Such manifestations can be measured with self-report or teacher-report questionnaires (Fredricks & McColskey, 2012), but also in terms of directly observable aspects of behavior (such as time spent reading; Miller, 2015) or physiological indicators (such as cardiovascular reactivity; Gendolla, Wright, & Richter, 2012).

The following table provides a few examples of popular self-report measures that have been used to measure important motivational constructs. Considering that there other measures (including ones that are not based on self-report or single time points) that assess the same constructs, and considering that there are many other motivational constructs that can be assessed, the instruments listed below should not be used without first considering the context, purposes, and constraints of the research being conducted.

Sample Instrument	Type	What does it measure?	Context	References
Academic Self-Regulation Questionnaire (SRQ-A)	Self-report	Measures students’ autonomous vs. controlled motivation in academic contexts	International	Ryan & Connell, 1989
Achievement Goal Questionnaire–Revised (AGQ-R)	Self-report	Measures students’ mastery and performance goals	International	Elliot & Murayama, 2008
Engagement Versus Disaffection with Learning Scales (EvsD)	Self-report & teacher-report	Measures students’ behavioral and emotional engagement (as well as their disaffection)	International	Skinner, Kindermann, & Furrer, 2009
Self and Task-Perception Questionnaire (STPQ)	Self-report	Measures students’ expectancies, values, and perceived costs in a particular academic domain	International	Eccles, O’Neill, & Wigfield, 2005; Eccles & Wigfield, 1995

1.7. Literature

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