

# Considering students' intrinsic motivations and positive emotions in course design: Are they ends, means, or threats?

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**Abstract**—Instructors often cite student motivation as a critical component of successful learning experiences, or a key barrier to student engagement in the classroom. Given motivation's influence on identity and well-being, and the important relationships between motivation and learning outcomes such as creativity, critical thinking, self-regulation, and performance, it is reasonable to assign student motivation a place of relative prominence within the complex learning system. In this workshop, we explore our individual and collective mental models for student motivation in the classroom. Specifically, we explore two distinct perspectives on the value of motivation: motivation as a means to other learning outcomes, and motivation as a developmental end point. In addition, we consider how instructors' beliefs about and expectations for student motivations inform the design and implementation of learning experiences, and how different motivational orientations may create productive or destructive dissonance in the classroom, or threaten certain educational goals or outcomes.

**Keywords**—*motivation, engagement, student experience, academic culture, holistic learning, curriculum design, self-determination*

## I. INTRODUCTION

It is easy to gain enthusiastic nods of approval from faculty with statements such as, *students should be engaged and motivated, and feel enjoyment and satisfaction in their learning*. But how often do we contemplate what student motivation and emotion mean to us, and to our students' learning experiences? How do we conceptualize motivational and affective issues in the classroom, and what types of motivational or emotional responses do we expect or desire from our students? Are motivation and emotion means to some greater end, such as knowledge acquisition or exam performance, or are they desirable developmental outcomes in and of themselves? Do we want students to develop positive motivations and emotions in order to cognitively engage and reach performance goals, or do we want students to engage and perform so that they develop positive motivations and emotions? Are *intrinsic* motivation and *positive* emotions actually desirable, or are they, in some way, threats to our beliefs, values, or goals in engineering education?

In this workshop, we will explore these questions through discussion, analysis, and design, using both theoretical and practical lenses. Participants will examine their beliefs about

students' intrinsic motivation and positive emotions, share their views and experiences with others, and discuss how framing motivations and emotions as means, ends, or threats influences students' educational experiences. The special session agenda is divided into three parts: Part 1 raises questions about motivations and emotions as learning ends versus means, Part 2 examines motivations and emotions as potential threats to the learning experience, and Part 3 considers motivational norms and expectations in the larger educational system.

## II. BACKGROUND

Learner *motivations*, the psychological intention and energetic drive to do something [1], and academic *emotions*, the physiological responses, expressions, or subjective feelings in response to a stimulus [2], are important but often overlooked aspects of the learning process. Educational researchers have demonstrated strong positive correlations between motivational factors and a wide range of cognitive and behavioral outcomes including self-regulation, critical thinking, conceptual understanding, exam performance, creativity, effort, and persistence [3-8]. Positive emotions such as enjoyment and hope also relate positively to cognition and performance; conversely, negative emotions such as anxiety and boredom correlate negatively to course grades and cognitive strategy use [9,10]. Empirical models illustrate that the relationships between positive drive and affect, as well as cognitive engagement and performance, are causal and reciprocal, not simply correlational [11,12]. It is clear that motivations and emotions can serve as *means* to attain other learning goals.

On the other hand, some educational researchers and practitioners consider positive motivations and emotions as critical learning outcomes – or *ends* – in and of themselves, i.e., skills, attitudes, and mindsets that learners may develop and deploy similarly to how they develop and deploy technical knowledge or critical thinking. Learners adopt motivational and affective beliefs and strategies that influence what they choose to do [13,14] but also define who they are [15]. Models for self-regulation identify motivational self-beliefs and strategies, personal agency, and intrinsic goal orientation as critical competencies, on par with cognitive and metacognitive skills [16,17]. Motivational and affective beliefs and experiences are essential to identity, psychological health, self-efficacy, self-worth, personal agency, optimism and well-being

[18-20]. Motivation and emotion are measurable outcomes considered by some to be essential to whole person development [21-23], and they could be positioned as learning goals in every course.

Another perspective that is sometimes voiced in engineering educational circles is that intrinsic motivations and positive emotions are threats to rigorous technical learning. From a self-determination perspective, instructors may perceive tensions between knowledge acquisition and skill building demands – what students *must know* or *must do* – and learners’ basic needs for relatedness, competence, and autonomy. Even when instructors believe that students benefit most when their drive to learn is intrinsic, classroom or institutional contexts may evoke control oriented behaviors among teachers [8]. For example, instructors may encourage students to collaborate with each other (relatedness), but only if they can ensure that everyone does her equal share, verify that nobody is “free riding,” and certify all students via individual examinations. Students are expected to gain a sense of broad competence and mastery, and individual perspectives, but instructors may design assessments to highlight deficiencies and learning gaps, or to determine if students adopt the teacher’s viewpoint and arrive at the “right answer” [8]. Instructors might encourage learner autonomy, but only if it aligns with the constraints of the course. Passion and interest that drive students outside the bounds of the syllabus may be tamped, or even punished. Some instructors may develop beliefs that firm control in the classroom (e.g., hard deadlines, tough penalties, tangible rewards) leads to improved academic performance, and that emotions interfere with the learning process [25]. The educational literature, however, shows that deep cognitive engagement and high performance are synergistic with learner autonomy, positive affect (enjoyment, hope), and intrinsic drive [e.g., 10,23-26].

In addition to facilitating better student learning, research indicates that more systemic adoption of intrinsic motivation mindsets and behaviors also benefits instructors and organizations [27-29]. Shifting educational systems toward learner autonomy, intrinsic drive, and positive emotions, however, is not always easy. Instructors face deeply embedded systemic structures and institutional norms, as well as their own epistemological beliefs, which may run contrary to contemporary educational research. In 1938, John Dewey described the student-teacher relationship as one of “sheer obedience to the will of an adult,” but recognized that the situation of “adult imposition” and “kept order” in schools was almost forced upon teachers due to a lack of community-based values and person-centered approaches in the larger organization [30]. More recently, Reeve (2009) referred to instructors’ adoption of controlling behaviors, even when they aspire to autonomous learning motivation, as a “recurring paradox” in schools [8]. Reeve examined how instructors may adopt an extrinsic mental model for motivation and controlling behaviors in response to *pressure from above* (e.g., accountability and responsibility, demands for structure, interpersonal power differential, school policies, and cultural valuing of control), *pressure from below* (e.g., passivity of students in active learning settings), and *pressure from within* (e.g., belief in the usefulness of tangible rewards, control-

oriented personality disposition). While most studies of controlling, extrinsic instructor and systemic behaviors are set in K-12 environments [e.g., 31-35], it is not difficult to imagine how the concept of extrinsic control at the personal, institutional and cultural levels operates within higher educational settings [36-38].

Despite the personal, interpersonal, and systemic challenges, educators have identified practical ways to shift learning experiences and classroom environments toward autonomous motivations [8,39-40]. Successful support of autonomy at the classroom level, however, may demand a more significant transformation of personal beliefs and systemic structures at the departmental, institutional, disciplinary, or national levels [33-38]. In this special session, we will explore how practical approaches to intrinsic motivation are implemented, or could be implemented, in different institutional and disciplinary settings, and how we might reap the benefits of intrinsic motivation at all levels of our educational systems.

### III. SPECIAL SESSION GOALS

The primary goals of this session are to (1) frame a deeper conversation of motivation and affect in the engineering classroom, (2) facilitate meaningful sharing of experiences and perspectives from a range of institutional settings, and (3) engage the group in articulating how our beliefs about and conceptions of students’ motivations and emotions influence our course assignments and goals, learning environments and cultures, and interactions with others in the educational system.

### IV. SPECIAL SESSION AGENDA

The special session will begin with a brief orientation to learner motivations and academic emotions, including a discussion of definitions, key theoretical frameworks, and important linkages among motivations, emotions, and other learning outcomes. Participants will share their perspectives on the positive and negative motivational and emotional responses they observe in their own classroom settings. Following the brief introduction, participants will delve into deeper analysis of the motivational and emotional environment in their courses, and their beliefs about and mental models for students’ motivational and affective responses.

The detailed agenda for the workshop is as follows:

#### A. Part 1 – Motivations and emotions as ends versus means

Participants will unpack and share their beliefs about academic emotions and motivations, using evidence from their courses. Through individual reflection and analysis, and group discussion, we will explore the following questions:

- [10 minutes] Reflect. Do we currently consider motivations and emotions as ends, means, both, or neither?
- [15 minutes] Analyze. What motivational and affective environment do we create for our students? To what extent do we make motivational and affective development explicit in our classrooms? What do our

course designs communicate to students about our expectations for motivation and affect? How do our beliefs influence our learning objectives, assignments, assessments, culture, interactions?

- [15 minutes] Design. How would we *prefer* to think about learner motivations and emotions? How might we effectively and intentionally incorporate motivational and affective learning in our courses?

### B. Part 2 – Positive motivations and emotions as threats

In Part 2, attendees will explore the tensions that may exist between our goals for motivational and affective student development, and the present design of our educational systems. We will explore the following questions:

- [10 minutes] Storytelling. Can we identify specific classroom experiences when students' intrinsic drive or positive emotions have gotten in the way of other learning goals?
- [15 minutes] Analyze. What do these stories tell us about students' motivational and emotional expectations and beliefs, and instructors' motivational and emotional expectations and beliefs?

### C. Motivational and emotional beliefs in the larger educational system

We will end the session by appraising individual beliefs and course designs in light of the larger system structures that influence our beliefs, actions, and interactions. We as faculty aspire to high levels of student drive, enjoyment, and satisfaction; but our course designs frequently restrict intrinsic motivations and positive affect. Why is this? Are there larger systemic constraints, norms, beliefs, and values that limit our support of motivational and emotional development? Do our classrooms mirror the ways we approach motivations and emotions at the departmental, institutional, or disciplinary level, e.g., through accreditation or promotion and tenure? Is it possible to support the emergence of intrinsically driven learners within the current educational system, or do we need to shift larger-scale values and practices?

## V. INTENDED AUDIENCE

This session is intended to attract a diverse group of educators who are interested in exploring students' motivational and emotional development in our educational systems, including:

- Educational practitioners who wish to consider incorporating concepts of and frameworks for students' intrinsic motivation and positive affect in their course designs;
- Educational researchers in the areas of student motivation and affective domain development who wish to share their theoretical and empirical insights;
- Engineering educational change agents who are actively attempting to understand and reframe systemic-level problems and opportunities; and

- Academic administrators who hope to create intrinsically motivating and emotionally engaging environments for faculty and students in their programs.

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