

“Lost in Translation: From Engineering Norms to Identities”

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What is Hidden Curriculum (HC)?:

- Refers to the unwritten, unofficial, and often unintended assumptions, lessons, values, beliefs, attitudes, and perspectives that are not openly acknowledged in a given environment. Hidden curriculum, as one of four primary forms of curriculum, lies in the liminal spaces of the conscious and unconscious mind to inform an individual about their surroundings.

What do you do if you find hidden curriculum (self-reflection questions)?

- Is this something that affects one student, one course, one major, or all students?
- Is this an “easy” change or one that will take multiple people/policy changes/meetings?
- Can I leverage my position as [faculty, staff, administrator, director of undergraduate studies] to change this HC?
- Is there someone whom I think could help me in the process?
- What would be the ideal learning outcome?
- What are the possible downsides to addressing this HC?

(Note: Not all steps outlined from this point forward have to be used and should be viewed as a starting guide; it’s important that pertinent actions are reflected upon first and contextualized to your situation):

Steps to gain additional HC awareness and communicate it to engineering:

A. Gain awareness of HC in engineering-

- 1. Begin to understand or annotate what is described as “common sense” information in engineering at your institution.
 - a. Look at the missions and policies of your college or talk to peers, particularly around what is considered important for an engineering student’s education.
 - b. Ask yourself if there are assumptions made about these missions or policies, how inclusive are these assumptions, and whether you can help debunk some of these in your existing role.
 - Ex: Syllabus, Start of a Lecture, and Assignments are great places where you can explain more the motivation and rationale for a given topic or concept as they relate to the field of engineering.

B. Self-assess if HC is influencing students’ perceptions or creating inequities (reflection)-

- 2. Periodically assess the perceptions and beliefs about the norms of engineering that students have acquired in courses or student organizations you are involved with.
 - Ex: A short self-reflective assignment or essay on how a given topic or activity will be important in engineering can be informative.
 - Ex: Ask TAs or other student observers help you gather information about the sentiment of a given group about engineering or engineering group activities (e.g., capstone)
 - Ex: Do a “minute-paper” in class and ask about what students believe engineering is about and what questions they have about the profession.

C. Expose HC and communicate it to accountability partners before taking action-

- 3. Share your findings with others (e.g., peers) you trust and find ways to develop purposeful classroom or organizational activities that would convey the message that students need to learn.
- 4. Before taking any action, think of how your communication of a specified HC may be understood by others and how they may (un)support systemic inequities; it is recommended that you have an accountability partner to share these actions with first.

Practical actions to equip students to navigate HC in engineering courses:

#1: Learning the “Game” of Navigating the Curriculum of a Course

- Host opportunities for informal learning opportunities about how to best study or prepare for an engineering course (e.g., “brown bags”; “ask the instructor” sessions; “ask former students” panel, etc.) and include information about the need to learn outside a paced environment (e.g., state how many hours should they expect to study for a given engineering course and actions to take if they exceed this timeframe).
- Open an “anonymous discussion board” in a course learning management system or consider leaving an “anonymous comments box” in the back of the classroom. Remind students to include any concerns in them (e.g., in other words, create safe opportunities for students to pose concerns or ask questions about their educational environments and how to succeed in it without them feeling that they will be evaluated harshly by the instructor if they share this information).
- Make clear to students what are the instructors’ expectations about in-person and online communication in an engineering course (e.g., how to email an instructor; how to approach a faculty or staff inside and outside of the course) and explain to them why this is important in connection to their intended profession.
- Provide more explicit information about course expectations in a syllabus (e.g., list instructors’ expectations of students and state what they should expect from the instructor as well).
- In small classes, develop a ‘welcome guide’ alongside former students, by asking them to provide ideas about what other students should expect to learn in a given engineering course; alternatively, this can be done with teaching assistants (TAs) instead.
- In large classes, do a one-minute paper activity where students are asked to write what their expectations for the engineering course is or what was unclear about the syllabus. Ask TAs to summarize students’ entries so the instructor can address them on a follow-up course. This could also be done as a comment box, similar to what was stated above.
- Explain to students the potential isolation they may feel if they don’t proactively seek interactions with classmates and instructors (e.g., study groups); it may be worthwhile to generate a “study group” poll or Google Doc that students can use to find those study partners.
- Demonstrate to students what it is like to be an instructor. Ask students to practice grading anonymous assignments from prior semesters with a rubric you have created in the course to help students understand how they will be evaluated.

#2: Learning the Value of Accessing Resources from in an Engineering Course

- Provide alternatives or “workarounds” for those with limited access to educational resources (e.g., video tutorials, closed captioning, problem-sets, library, career services) and explain its intended use in a course.
- Provide self-assessment activities to help students gauge their ability to perform in a course (e.g., conceptual exams or quizzes, concept inventories, tutoring, etc.); it may be worthwhile to include participation points for students to use some of these resources in a class.
- Be prepared to have resources at hand in case a student may need extra help that an instructor feels they cannot do or are qualified for (e.g., counseling).

#3 Learning the Connection between an Engineering Course and the Engineering Profession

- Make clear expectations of profession and/or connect students in a course to resources that would assist them understand the profession better (e.g., while oftentimes, speakers such as librarians are invited to courses, recent literature suggests the importance of inviting other individuals such as career services, engineering recruiters, or recent alumni to classes to help students connect with their profession); an alternative would be to include case studies or alumni panels that can help students assess the role of engineers in a given field.