

Learning Objectives in Practice: A Collaborative Autoethnographic Exploration

Dr. Jennifer A Turns, University of Washington

Dr. Jennifer Turns is a full professor in the Human Centered Design & Engineering Department in the College of Engineering at the University of Washington. Engineering education is her primary area of scholarship, and has been throughout her career. In her work, she currently focuses on the role of reflection in engineering student learning and the relationship of research and practice in engineering education. In recent years, she has been the co-director of the Consortium to Promote Reflection in Engineering Education (CPREE, funded by the Helmsley Charitable Trust), a member of the governing board for the International Research in Engineering Education Network, and an Associate Editor for the Journal of Engineering Education. Dr. Turns has published over 175 journal and conference papers on topics related to engineering education.

Arpita Bhattacharya, University of Washington

Yuliana Flores, University of Washington

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Introduction

Learning objectives are often treated as standardized, prescriptive elements of educational design, frequently viewed as bureaucratic requirements that potentially constrain rather than enhance learning experiences (Mitchell and Manzo, 2018). This study draws on collaborative autoethnographic traditions (Sochaka et al., 2018) to challenge these normative perspectives by investigating how three educators with diverse positionalities engage with learning objectives across different teaching contexts.

The research brings together a PhD student teaching a new course, an assistant teaching professor refining an existing course, and a full professor teaching a dramatically changed version of a doctoral-level course. All courses were in the department of Human Centered Design and Engineering (HCDE). Through weekly recorded conversations during an academic term, the study explored the complex ways educators interact with, interpret, and implement learning objectives. These conversations built on the participant observation tradition in ethnography by providing a space for the researchers to make observations about their participant roles (i.e., their work as educators engaging with learning objectives). The research sought to examine the challenges, contradictions, and emergent opportunities that surface when deeply engaging with learning objectives across varied educational settings.

Findings reveal insights into the planned, lived, and possible roles of learning objectives in instructor's everyday practice. For example, the study surfaced how the origin and framing of objectives significantly impact educational experiences, highlighting institutional constraints that may inadvertently limit learning potential. The study also documented innovative emergent approaches, such as activities that directly engage students with learning objectives, including student-led questioning and reflective exit tickets. An overarching theme has to do with the transformative potential of viewing learning objectives as adaptive tools rather than rigid frameworks. In addition, the results of the research challenge traditional approaches to educational design by demonstrating how learning objectives can be reimagined to support broader educational goals beyond competency-based assessment, particularly in experiential learning contexts.

In the next section, we provide background on learning objectives before turning to the details of our method, themes we identified in the data we collected, and the significance of these themes as well as the overall experience of doing autoethnography as it relates to the themes. Overall, the study ultimately aims to empower educators by providing a nuanced exploration of learning objectives in practice. By putting findings in dialogue with faculty development literature and design research, the research seeks to transform learning objectives from bureaucratic hurdles into meaningful instruments that genuinely support and advance student learning.

Background

Engineering education researchers have been attending to learning objectives for a long time. A **search of the ASEE Document Repository (PEER)** for papers with learning objectives in their

title yielded 48 papers spanning the time period 1999 to 2025. Most papers were from the annual conference, with a few from regional conferences and the First-Year Engineering Experience (FYEE) event. The papers show a balanced distribution between domain-specific contexts (with laboratory settings being particularly prevalent) and more general approaches. The focus of these papers varied, with 21 exploring pedagogical strategies for achieving learning objectives, 10 examining definition and selection processes, 8 addressing assessment methods, and the remaining papers covering meta-discussions, providing advice, or exploring unique perspectives such as student awareness of objectives and cross-course objective alignment. From this, we infer that learning objectives are a topic of interest in the engineering education research community.

Alternative grading strategies such as standards based grading and ungrading center around learning objectives (LOs) for assessing what is “observable” by the instructor (Clark & Talbert, 2023). For example, in Step 1 on writing assessment based objectives or standards, Clark & Talbert divide LOs into three tiers: (1) course-level objectives – these might be written by instructors or decided at the college or department level, (2) assessment-level objectives – an instructor writes what are observable learning outcomes that ideally inform the rubrics for each assignment, and (3) lesson-level objectives – these are more nuanced objectives for each class session (Clark & Tabert, 2023, pg 156-164). The authors explain that assessment-level LOs can also help the instructor scope and reduce assignments based on what is worth assessing.

Faculty development training or universities’ instruction manuals for engineering educators typically teach instructors to write learning objectives (LOs) of a course using Bloom’s taxonomy (Bloom, 1956) or its revised versions. Bloom’s taxonomy (Anderson & Krathwol, 2001) is used as a model for writing LOs in the Accreditation Board for Engineering and Technology (ABET) workshop for professional development of educators and administrators interested in program assessment (ABET, 2023), and has helped some instructors develop and align their rubrics with student outcomes prescribed by ABET (Gosselin & Okamoto, 2018). To help manage time and content, the National Center for Faculty Development & Diversity’s (NCFDD, n.d.) teaching toolkit program trains instructors to use a “capsule lesson plan” where instructors write lesson-level objectives and plan each class session’s activities by aligning them with a specific learning objective (NCFDD, n.d.). The teaching and learning center at the University of Washington (UW) offers training for faculty to use backward design on an existing course to align learning outcomes with skills, and content and assignments that help build the skills (UW, n.d.-a). Aligned teaching is now a part of core elements used for judging effective teaching per the faculty code at the authors’ university (UW, n.d.-b). We noticed that the primary goals of these faculty development programs are to help instructors use LOs to scope class-content intentionally, provide clear expectations or standards for students, and use time efficiently for planning and grading amid other work-life responsibilities.

Through our collaborative autoethnography, we question how these top-down expectations related to LOs play out in our everyday teaching practice. We ask, how are LOs experienced and designed by instructors and students *while* we are teaching and how do LOs connect us with the broader educational ecosystem within which our teaching resides?

Method

Autoethnography was selected as the approach for exploring learning objectives for several reasons. First, autoethnography provided a way to tap into the emotional and intellectual dimensions of educators grappling with aspects of their work lives--dimensions that could surface the insights around learning objectives that were of interest. Second, autoethnography is a recognized social science methodology (Ellis et al., 2011). Third, autoethnography is becoming more commonly used in engineering education research (Sochaka et al., 2016; Colquitt, 2025; Turns and Flores, 2025). Autoethnography is particularly appropriate when those who engage in autoethnography have a distinct vantage point from which to view the work around them.

Researchers. In this collaborative auto ethnography, three educators came together to explore learning objectives. As author J (a full professor) was redesigning her course and author A (an assistant teaching professor) worked to refine the foundation sequence in this third year, we became deeply interested in examining the gap between originally articulated learning objectives and the actual learning accomplished over time. We decided to leverage autoethnography as a method to transform our casual conversations into a more substantive scholarly investigation. By recruiting a third partner (author Y, a Phd student teaching a new course for the first time), we framed our individual course experiences as sites of "participation" and engaged in six structured discussion sessions that became far more transformative than we initially anticipated. These conversations created a means for us to examine the nuanced ways learning objectives function as resources, sites of agency, and critical interfaces within the broader educational ecosystem.

Doing autoethnography involves marrying the work of ethnography (data via participant observation and selective interviewing, and analyzing via thick description) with the focus being on the lived experience of the researcher engaged in the autoethnography. Thus, there needs to be ways to observe practice, something representing the "interview" function as a way to go beyond observations, and finally ways to analyze the data toward thick description.

Data. In autoethnography, participant observation starts by recognizing the daily practices of the autoethnographic research as being relevant to the study. In this case, the idea was that the work of educating would involve engagements with learning objectives, which could then be captured and analyzed. To support this, the researchers met up on a weekly basis and started each session by freewriting about their engagements with learning objectives in the previous week. While each of the researchers had started with a specific course in mind, the free writing was left open to what the researcher wanted to share. On a few occasions, one of the researchers had captured observations prior to the meetup and shared those written observations as part of the free write. The products of our free writing represent our first form of data, and represent a way of observing.

We captured the interviewing aspect of ethnography through dialogue that happened following the freewriting. Once we had finished free writing, we engaged each other in conversation around what had been written, typically around 20 minutes per person. Our "interviewing" consisted of asking each other for elaboration and reacting to what had been written and having dialogue. We captured these sessions using the recording feature of Zoom, and leveraged the transcription of these sessions as a second form of data.

Analysis. At the end of the academic quarter (and after six meetups), we turned our attention to data analysis. To support our work, we moved our freewriting and our conversations transcripts to a cloud-based collaboration space (Miro), and started to review what we had collected. We used an open coding style procedure to explore potential themes; this open coding was conducted by annotating the data on our Miro board (using sticky notes) and then creating an affinity map of the initial codes. After discussing the space of initial themes, we finalized on the themes we would include in the paper, and turned back to the data in order to develop the themes in close dialogue with the data. These themes evolved and became the themes we include in the results section.

Attending best practices. As with any methodology, it is important to take steps to address known challenges. For example, Delamont (2007) has offered six objections to autoethnography: "I said I had six objections to auto-ethnography: 1. It cannot fight familiarity 2. It cannot be published ethically 3. It is experiential not analytic 4. It focuses on the wrong side of the power divide. I now add two other objections: 5. It abrogates our duty to go out and collect data: we are not paid generous salaries to sit in our offices obsessing about ourselves. Sociology is an empirical discipline and we are supposed to study the social. 6. Finally and most importantly 'we' are not interesting enough to write about in journals, to teach about, to expect attention from others. We are not interesting enough to be the subject matter of sociology." In our case, we have been able to use each others' experiences to fight familiarity, focus on the everyday in order to address ethics, use our analysis process to transcend familiarity, embrace our differential positions in the power hierarchy as an asset, collect data through free writing and recorded dialogue, and tap into our own experience to help others see their experiences. In addition, we have leveraged more standard techniques to address trustworthiness of qualitative research such as maintaining an audit trail via our Miro board (Shenton, 2004.)

In presenting results, we strive to bring in the voices of all three educators and appreciate the breadth of our perspective at the moment. Because this became richer than we had anticipated, we purposely sample from our data at times, rather than present a comprehensive analysis. This leaves room for additional treatment of our data in future publications. Finally, to support analytic distance in the results that follow, we use the first letter of our first names (A, J, and Y) and third person pronouns to refer to ourselves in the results section.

Results

Through our collaborative autoethnography, three themes emerged that reveal how learning objectives function in everyday teaching practice. First, we found that learning objectives became sites of innovation when educators actively engaged students in reflecting on their learning and used objectives to guide pedagogical decisions. Second, we discovered that the process of crafting learning objectives revealed both agency and constraint, with educators' ability to write or revise objectives shaped by institutional position and bureaucratic structures. Third, we observed learning objectives functioning as interfaces—mediating between different temporal moments, institutions, and ways of conceptualizing learning. Together, these themes challenge the static use of learning objectives to reveal them as dynamic tools that can both enable and constrain educational practice.

Learning objectives as a site of innovation

In this theme, we explain how all three educators reflected on their use of learning objectives to guide their everyday decisions and conversations with students and teaching assistants *during* their respective classes. At the start of this study in Autumn 2025, J was intentionally incorporating learning objectives she designed for her PhD class on empirical traditions (HCDE 543) into daily class activities and assignments. A was using LOs she had designed to inform decisions related to her Master's level class on qualitative research methods (HCDE 519) but not using the LOs she had inherited for her introductory undergraduate class (HCDE 302) in practice. Y had inherited LOs for her undergraduate professional portfolio class (HCDE 321) from past instructors and believed they were already aligned well with the work that students were doing in class. All classes involved experiential learning.

Aligning LOs with assignments is an ideal strategy for course-alignment as per educator training (UW, n.d.-c). When class materials were handed to Y — who was teaching and preparing for her class for the first time — she did not have the time to think about such alignment given the other work required to “prep” for the class. During the first meetup for this project, Y reflected on the learning objectives that aligned with the assignments that students were working on:

Which is the moment I had, as I was writing this, where I was like, oh my gosh, I hadn't even thought about the learning objectives. But then as I thought about the things I had [...] the activity I'm gonna have them do is really specific to Learning Objective 3. But then, through the peer review, they'll get Learning Objective 4, which is tuning their professional material. And then hopefully they're doing Learning Objective 5, which is drawing on their understanding of their personal and career trajectories. And they've already been doing Learning Objectives 1 and 2. And again, not in the peer review, but in the workshop time for the upcoming assignment. - Y during dialogue on 10/22/2025

Even if such alignment is known to instructors, we note that most classes do not involve students actively reflecting in relation to the LOs unless they are a part of assessments (Clark & Talbert 2023). Throughout this research, the educators' use of LOs in the classroom became more intentional and evolved through their discussions and deliberate actions. Here we share how each educator **designed activities so students could actively reflect on their learning**.

J conducted a daily activity in her PhD class with 12 students for the first part of the quarter wherein the students wrote down what they were noticing in relation to each learning objective and their affective experience (enjoyment, frustration, surprise, and curiosity). They added sticky notes to a whiteboard in the beginning of each class and at the end of each class (Figure 1).

Y used a weekly activity as an exit-ticket for students to reflect on what they have been experiencing or noticing related to LOs:

What's funny is that last week i had the exit ticket be "something you noticed" in reference to the LOs and "something you experienced" and only got response to the “experience” - Y's freewrite on 10/22/2025

J designed another activity for students to write a letter to themselves while using LOs as a guide and reflected on how the assignment centers their lived learning experience to allow them to express any additional learning outcomes:

I created my second “Dear Future Me” assignment for 543 and I connected it to the learning objectives but in a way that lets students decide how to proceed. They are supposed to write about 5-7 chunks of learning, with at least 2 being related to the learning objectives. This means that the reflection assignment can be entirely inside the learning objectives (five chunks and five objectives) or primarily about their lived learning (they could have 3-5 chunks of their own learning alongside the 2 required chunks). I like how this centers the objectives but also creates space for their agency. - J’s freewrite on 10/29/2022

Snapshot on Thursday, 10/16/25

Planned curriculum		Lived curriculum
O1: Capable, critical, generous reader - Feels like I am reading more capably - Little time to read → figuring out how to find time to read can support capable, critical, generous reading - Consistent schedule → Where can rdg fit O2: Fit in HCDE (& school & academia) - Love mid-class cookie O3: Practical/Ethical uses of AI - Interesting readings on AI and trust - Navigating my use of Claude - Appreciation for the conversation about intentional uses of AI O4: Preparedness for _____ - Writing future systems design papers - Research questions as fruitful → preparation for future question writing - Charting got easier → prep for reading - Curiosity about org of findings → preparation for future writing of findings O5: At least net-neutral for well-being - I'm hungry → Thank you for cookies - All enjoyment → Positive emotions - Peers refs → Engagement, relationships - Above → Accomplishments, meaning		ENJOY - Anticipation: Excited to see everyone's scoping review, - Project: Time to work on the project (get a heads start), confidence in group - Learning from peers FRUSTRATION - Reading: Too little time to read - Schedule: Trying to establish a consistent schedule SURPRISE - That our research questions were quite fruitful - How much easier it got to chart CURIOSITY - How different teams will organize the findings TAKEAWAY - N/A

Note: Black text represents what is on sticky notes; Blue text represents translational work to connect lived experience to planned experience.

Figure 1: A snapshot shared by J in her freewrite on 10/22/2025. The image shows a whiteboard where 543 students reflected on their lived experience in relation to the learning objectives of the class. J explained, “the typing is documenting what is on the stickies, the blue represents lived experience notes that I also added to what they noticed as related to the objectives.”

Both Y and J’s activities were intentionally designed to help students and instructors become aware of what students were learning. Alongside these student facing activities, LOs also guided **teaching decisions that the educators made in their everyday practice**. They used LOs while self-reflecting or in conversations with students and TAs, particularly while introducing assignments or providing feedback and assessment.

When I introduced the project yesterday, I talked through briefly how the project connects to the learning objectives. - J’s freewrite on 11/2/2025

I think this has also helped me with conversations with my TAs [for 302] – like, my TAs will be like, do we deduct for this? Do we deduct this? And I’m just like, if they don’t justify, just deduct. - A during dialogue on 11/12/2025

I am iterating my feedback/reflection practice as it relates to the learning objectives.
Excited to share this. - J's freewrite on 10/22/2025

In week 4 of the quarter, A and her teaching assistant designed an activity for students in 519 to assess and revise their own research protocols based on a LO. A reflected on this process and also how it informed a shift in their strategy for providing feedback:

We [TA and I] contemplated whether we should give a ton of feedback to “tell” students what to change question by question OR whether it is the students’ job and skill to learn to do it for themselves. Grounding myself with LO2 where the goal is that the students acquire this skill for themselves, we have come up with an activity on a spreadsheet where we will ask students to go question by question and assess the quality and alignment of their own questions. Then as usual, they will conduct a pilot session in class, and refine their protocol for another round of feedback and might even revise their RQs to make the study more feasible. This is all captured in LO2. I also made a diagram connected to this LO to show to the students so I can talk to them about this today in class (Figure 2). We also freed up class time for work and in-person feedback from me and TA to address this LO. This will set us behind on the timeline of the quarter. I told the class we are not proceeding with the next LO3 if LO2 is not met. :) – A’s freewrite on 10/22/2025

Activity: Alignment with research questions

LO2: Scope research question(s), choose appropriate method(s) to answer the question(s), and design and iterate on the research protocol.

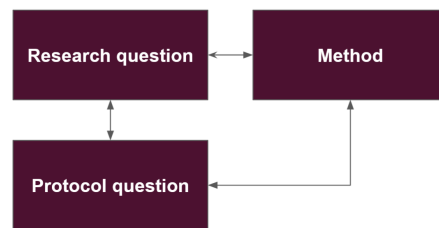


Figure 2: A’s diagram shared during freewriting on 10/22/2025 that she showed students on a slide for the research protocol alignment activity during class time

Additionally, nuanced **LOs emerged as the educators were discussing the lived experience of students** in each class. They had designed activities that were either fun ways of engagement or supporting professional skills without actively thinking about LOs. A rewrote LOs for 302 and showed relevant LOs to students at the start of each week. Overall, LOs became more clear to the educators upon deliberate reflection during this research. For example, teaching is an integral skill for PhD students who often become teaching assistants, educators, and mentors. J planned a peer-teaching activity for her first-year students. Reflecting on the LOs it connected with, she wrote:

Oh - I just realized.. The peer teaching has been a chance for them to practice teaching. At least one person said they had never “taught” before and they did a great job. So that is a form of learning that perhaps doesn’t quite align with the objectives. Or maybe it relates to fit - because they get to practice teaching? It is part of the capable, critical, generous engagement because it is about having a toolkit of ideas to use to engage the papers.. But the teaching is yet again another skill :-). - J’s freewrite on 11/19/2025

During the sessions, A, J and Y also collaboratively **brainstormed activities** that might align with some emerging LOs and could be used in future classes. For example, Y and J came up with LOs to communicate and integrate the importance of industry guest speakers and resume building for professional development:

“[for guest speaker]

Prompt: “What is a connection you can make between what the guest speaker said and the learning objectives?”

LO: learning to seek and take advantage of professional development advice

[for an activity on reflecting on resume]

Prompt: “My resume is a list of...”

LO: Recognize the potential to frame and reframe prior experiences in ways that matter.”

- Dialogue on 11/12/2025

As the meetings progressed, the focus of conversations shifted from LOs for specific classes to the experience of the instructor as a whole. A cross-cutting pedagogical development in the above examples was that the educators used LOs in empowering ways to understand what kind of lived-learning experience they were creating for students, discuss their intent with students and colleagues, and help students actively learn about what they are learning in the class. Thus, LOs were no longer static words laden with jargon on the syllabi but instead LOs came alive to guide reflections, decisions, and conversations with students, teaching team, and fellow educators.

In this section, we have discussed how we proactively leveraged the learning objectives in our teaching, and how we noticed the ways in which the articulation of the learning objectives can support their use. In the next section, we turn to thoughts we had during the research about the *crafting* of the learning objectives which included both thoughts on how to craft and frustrations on situations where we felt less autonomy around crafting them.

Learning objectives as agency and constraint

Stories about writing Learning Objectives

On October 29th, J's freewrite addressed two instances related to writing learning objectives. The first concerned her current class (543), where she reflected on her own evolving understanding of the learning objectives. She specifically mentioned her learning objective about "students becoming capable, critical, generous readers" and noted that "reader" encompasses more than

just reading - it also includes writing and engaging. This realization prompted her to ask: "What is the best way to address this??" - questioning how her learning objective could better capture that "reader" involves reading, writing, and engaging.

J's second instance involved a new course she would be teaching in Spring quarter. She explained that a syllabus had been created to get an AI certificate course approved, and she was not involved in its creation. The syllabus included learning objectives, which she shared with the group. A responded with an in-text comment: "It would be interesting to see how much of these act as constraints when you plan the materials and how you speak back to these objectives."

A's experience across two courses illustrated the contrast between inheriting and creating learning objectives. In the October 22nd dialogue, she had expressed frustration with 302, a course with inherited objectives: "with 302, I just don't feel like I care about our main objectives [referring to how they are worded on the syllabus]." She had revised the LOs in faculty training workshops but due to bureaucratic constraints, had been told not to change them on the syllabus. At this point in the research, A shifted her focus to another course she was teaching (HCDE 519) where she had written the learning objectives herself, explaining the difference: "519, I wrote the learning objectives I [...] will be able to talk more strategically about how the class connects to the assignment, to what the students take away."

By October 29th, A's freewrite revealed a shift in her approach to the 302 course. After "getting all the angst out" in her previous memo and working through her 519 LOs, she began applying a skills-based framing to LOs in 302. She rewrote objectives for the user research report assignment and shared them explicitly with students, framing them as "Skills you are learning":

1. Identifying unique challenges and design opportunities from **participant data**.
2. Synthesizing participants' perspectives, goals, and challenges to generate **empathy** and **inspiration** to address the design problem.
3. Communicating effectively to align team members, peers, mentors, and experts on the design problem, goals, and results. (A, freewrite on 10/29/2025)

This represented A reclaiming agency over the 302 learning objectives by reframing them in her own language, even within the constraints of the inherited course structure. The educators' reflections on this work of writing and rewriting objectives surfaced a broader realization about what learning objectives fundamentally represent. The educators talked about reclaiming LOs from being bureaucratic artifacts to something they could use. The quotes below capture the educators' realization of reclaiming learning objectives to explain to students — "what counts":

Earlier, I was saying, like, the learning objectives have a particular language, right? They have to use some words instead of other words, and then the words that they use are actually frames, they're, like, ways of articulating knowledge, but then you're saying that they also then are ways of articulating what counts, and then they're ways of expressing the field, and so...But yeah, so it takes it out of this debate about, like, you didn't use a Bloom's Taxonomy word, and are you trying to be evaluate versus analyze, and into this larger kind of thing of, like, what is...you know, what is the core of this field? Like, how do we talk about this field? And it's like, if you could talk about your learning in relation to these objectives and use the same language, that isn't just a means to an end, that's the end itself. Like, you're actually talking like a person in the field. - J during dialogue on 10/29/2025

[...] reclaiming my learning objectives to be, like, thinking about the skills, thinking about what are students going to take away from this? This work that is not just, like the, the topic of the [project] I'm working [on]. Yeah, so I felt good, and the students asked really nice questions. - A during dialogue on 10/29/2025

Yet this sense of reclamation and empowerment was not universally experienced, as differences in institutional position shaped who felt able to craft or revise learning objectives in the first place.

Stories about constrained agency

In October 22nd's dialogue, Y had asked J about the learning objectives for her course, HCDE 321. Earlier in the conversation, Y had described not proactively thinking about the learning objectives until the moment of the freewrite. When Y began to write, she realized her plans for the upcoming class aligned with the learning objectives. She then asked J, a former HCDE321 instructor, about how the learning objectives came to be.

What is significant about J's response is that she redesigned the learning objectives without questioning whether she had the authority to change them. As a full professor, J explained: "it never even crossed my mind not to rewrite them." She had taught the course and by week five realized the existing objectives didn't capture what mattered - leading her to rewrite them.

In contrast, earlier in the same conversation, A had stated: "neither Y nor I have the freedom to actually reword the learning objectives on the syllabus easily. I think there's a way to do it, but, like, we can't. So, it's kind of like the handed-offness of the learning objectives is true for both of us." A was referencing ABET accreditation and its impact on learning objectives for their courses.

Both A and Y had inherited learning objectives and, unlike J, had not considered changing them - demonstrating the constrained agency they experienced as non-tenure-track instructors. A's frustration was evident in her freewrite that same session: "I WANT TO CHANGE THE LEARNING OBJECTIVES lol" (A, freewrite on 10/22/2025).

The contrast between these experiences reveals different relationships to learning objectives based on institutional position and course ownership. J's position as full professor meant she redesigned objectives without questioning her authority to do so. In contrast, A and Y navigated bureaucratic constraints (ABET accreditation) and inherited courses, initially believing they could not easily change the objectives on the syllabus. However, A's change of experience between October 22nd and October 29th demonstrates educators' possibility of finding ways to reclaim objectives within existing constraints—not by officially revising course-level objectives on the syllabus, but by articulating them differently in their immediate teaching practice and assignment materials.

Learning objectives as interfaces

The data provide a rich window into learning objectives as dynamic interfaces—complex mediational spaces that negotiate meaning, expectations, and understanding across multiple domains. Such a perspective stands in contrast to a more instrumentalist view. Through initial

open coding, 23 distinct interfacing pairings were identified, revealing the remarkable breadth of these negotiative spaces. Learning objectives emerge not as fixed, but as fluid mechanisms that interface between institutions, temporal moments of teaching, and fundamentally different ways of conceptualizing learning.

In the initial open coding of the nature of the entities that learning objectives interfaced between, 23 pairings were identified suggesting the breadth. For example, the learning objective can be an interface between institutions, between temporal moments of teaching, and between different ways of conceptualizing the learning in an instance of teaching.

The learning objectives can be used to interface between institutions as in the case of transfer students wishing to have a course taken at a previous university provide credit at the current university.

J: a more concrete thing, if a student brings a course in as a transfer student from somewhere else, and the system is trying to figure out should their course from this other institution count as a direct... correlate to a course in our UW system."

The learning objectives can be used to interface the past and the present, as in the case of past versions of the course vs. current versions. For example, the discussion on 10/22 involved comparing the current course being taught by A to a previous configuring of the same learning objectives:

A: Not entirety of 300, though, because we have split the theory across 302, 303, so some is in 302, some is in 303, but...

Y: But that whole practice of 300, which was you have to synthesize some readings,..

A: have a critical lens to it. I think that's incorporated across the two classes. So 302 is essentially half of 318. But spread out across."

While this text does not explicitly leverage the concept of learning objectives, the segment focuses on how the objectives of the original course called 300 is now distributed across the courses called 302 and 303.

In addition to institutional and temporal interfaces is the idea of learning objectives as an interface between different ontologies of knowing or ways of conceptualizing what is being learned, such as in this comment where J is responding to observations by A about a different way to articulate the learning objectives for the course she was discussing:

J: Okay, so I'm hearing a couple of things. I'm hearing one is there could be a whole different way of even representing the learning objectives that sort of is not phase-based."

Across the first meetup, learning objectives as interfaces included the following: Learning objectives served as an interface between different educators, different ontologies of knowing, espoused and enacted learning, imagination and plans, instructor and materials, instructor personal vision and the materials, one viewpoint and another, performance and learning, plans and grades, practice and values, teaching and accreditation, teaching and design, teaching/learning and larger system, the class and a bureaucracy, the past and the present,

specific ultimate particulars, university and other universities, visions of learning, visions of oneself as a teacher, lived experience of teaching and expectations, and required and possible. Since this is a huge space, a complete accounting of learning objectives as an interface is not possible in this manuscript. We can, though, turn to how this theme played out in the final meetup.

Turning to our final meetup, rather than running out of things to talk about, we were still going strong and seemed to have been getting a bit more philosophical. Because it was the end of the term, part of the conversation had a debriefing quality which took the form of the learning objectives being an interface between the planned and the enacted. As we each shared what our final stretch had been like (students giving impactful presentations, students completing assigned peer teaching), we were speaking about what we could see and notice and wonder about what had actually been learned. While this part of the conversation was not as disciplined as it could have been in framing the issue as alignment or misalignment between planned and enacted, the sentiment was there.

Y: You know, so I'm just like, okay, what does that mean if I have not seen them. They've done the work, and the portfolio was good, you know?

J: And I didn't even realize that I was training 11 people to be good TAs. I thought I was just solving a problem of how to, like, bring new concepts in without me having to do it.

A: And some of the teams really emphasized how it changed from when they started to now, so they kind of had that nice reflection, and then they talked about what feedback they received from the reviewers that led them to make changes and things like that. And then, they showed their three storyboards.

This end of term conversation also had a looking-to-the-future quality, with a focus on learning objectives for planned learning experiences. This included a deep dive into learning objectives A had crafted for a new course she was proposing. From an interface perspective, the learning objectives were an interface between a pilot teaching experience that had happened in the previous summer (around 4 months prior) and the future learning experience being proposed (for the 1-year-out academic year). The notion of learning objectives as interfaces with particular ways of knowing appeared, such as when A and Y discussed the idea of inclusion in A's objectives, and when the group grappled with what is meant for someone to achieve a learning objective:

Y: I mean, upon initial read, I'm like, cool. has... things I'd be interested in, but then I'd be like. Like, belonging for who, well-being for who, access for who... Artifacts of, like, cultural... like, what does that mean? Storytelling, where are you drawing from for that? And specifically storytelling, because I had someone do... one of the students that presented today [...]

J: And so to not say, because we don't have the answer to storytelling, we're not going to put storytelling there, but it's just like... put it there, and then have people say, well, what do you mean by storytelling? And why did you use storytelling, not narrative? Or why did you do this? And... and that can be okay, because, like, they're so pithy learning objectives, they necessarily have to have things that aren't... fully explicated.

This future orientation also turned to a couple of experiential learning situations where learning objectives may require a different understanding. In the first quote below, the focus is on a learning experience called a directed research group (DRG) that exists in the HCDE department, and the second quote has to do with the kind of learning in capstone experiences. While both experiences are certainly related to objectives (they are done for a reason), not everyone has the same learning experience.

J: And then I noted that [student] had been sharing a DRG document, and she put learning objectives on it. But because it's a DRG, it's not really supposed to have learning objectives, except maybe the learning objectives of all DRGs are related to research. And then there's the content of the DRG that you might learn about, but the objective of being in a directed research group is to advance your research skills in some kind of way. [...]: I had told her that maybe she could call them the space of possible learning outcomes, but they're not her objectives, per se. Like, you don't get an A-plus or a B- on this particular thing, because that's not the way a DRG works, but saying, you might learn quite a bit about reflexivity, because we're going to talk about it, is like a possible learning outcome.

J: Oh, when you say these are skills you have learned, skills that you practice, I feel like there's something kind of presumptuous and weird, actually, about the whole idea of the objective being you've learned to do this. It's like, you've learned to do problem definition. It's like, no, you've learned a little bit more than you knew before about problem definition. Like, let's hope you've changed and advanced your understanding, but it's like, am I ever done? Like, oh, I learned to write an academic paper. It's like, no, I'm still learning.

These distinctions around experiential learning were a place where the conversation turned somewhat philosophical. Another instance happened as a committee meeting conversation was being reported. The committee had been discussing how to respond to student requests for more rigor, and instead of the learning objectives being an interface with visions of rigor (aka, modifying the learning objectives to embody an expectation of greater rigor), the committee discussion had turned toward grading. While this was a missed opportunity to see learning objectives as an interface between expectations and rigor, the instance does show an additional kind of interface.

J: In one of the program committee meetings today— and it was about students wanting more depth. [...] And then it gets turned into students want us to grade harder, then it gets turned on to we do not have enough rigor in the program, and I'm like, I don't think that's what students are trying to say. And we are HCDE, so we should be able to figure this out, but what I feel like when you said, the students were sitting upright, they were staring at each other, they were so engaged. I feel like what the students are trying to say is, like, I know what it feels like to think deeply, I know what it feels like to actually feel like something important is happening here, and I think what they're saying is it doesn't feel like something important is happening right now.

Discussion

In this work, we turned to autoethnography to explore how educators engage with learning objectives (interact, understand, implement, etc) and what that offers the engineering education

community. To this end, our results shed light on lived experiences and larger understandings through three themes: learning objectives as sites of innovation, learning objectives as sites of constrained or enabled agency, and learning objectives as interfaces. In this discussion, we build on our results by exploring two topics raised by our findings.

Countering hegemony and finding alternatives to Bloom's taxonomy

Our analysis prompted us to question why Bloom's taxonomy was the socialized norm when training instructors to write learning objectives and if there are alternatives to it. We were experiencing friction between the linear approach to classifying learning in Bloom's taxonomy and our observations and lived experiences of teaching in an interdisciplinary field where students learn by doing, creating, grappling with tensions in a social world, and working collaboratively. It left us wondering – Bloom's taxonomy offers a rather socialized and narrow view of how learning happens, and we found similar critiques shared by others such as Pring, 2014. We also explored learning goals connected to affective aspects of learning such as wellbeing, joy, self-trust, or reducing job-anxiety. We want to bring other taxonomies into the conversations and training that help instructors in designing learning objectives in engineering education, particularly, ones that include well-rounded growth of a student. A review of the literature surfaced other frameworks that are useful for articulating learning goals. These include: (1) Fink's taxonomy of significant learning with dimensions such as human dimensions, caring, and learning how to learn (Fink, 2013 and Santos and Chacon-Hurtado, 2024), (2) theories of intellectual development on how students are going through different cognitive developmental stages during graduate and undergraduate education (Perry, 1981 and Nilson, 2016), and (3) theories of self-authorship and the journey to self-authorship (Magolda, Meszaros, and Creamer, 2023). We believe our results suggest the importance of educators having access to multiple frameworks for characterizing learning objectives in order to support the kind of innovation and agency highlighted by our results.

Our work as professional development

We did this work in order to share insights related to learning objectives in higher education, hence the framing of autoethnography and the previous points being made around frameworks. That said, as we have had the chance to reflect on the experience, we note that there is evidence in our data of how the research effort concurrently functioned as professional development for us. While faculty workshops helped A rewrite LOs for her undergraduate courses, she was discouraged to change them on the syllabus due to bureaucracy. Our research resurfaced her interest in changing the LOs, and shifted how A rewrote and used them in her class as lesson-level LOs. Y was handed the LOs and was preparing and teaching the materials for the class for the first time. As the research progressed, Y connected her course with other efforts in the department that support students' professional development and brainstormed what changes she would make when she teaches the class a second time. In a fast-paced quarter, instructors barely have time to reflect on, engage with, and question how LOs came into being. Through our weekly meetings, we were able to deeply engage with our goals for each class, what kind of learning students were actually experiencing, and how and why we made decisions using or not using the LOs. We moved beyond a constrained and socialized understanding of what LOs should be to what else LOs could be. Perhaps others can leverage a similar structure to learn together.

Conclusion

Overall, it was humbling to reflect on how students and universities rely on and benefit from learning objectives, and we came to think of our process as pedagogical therapy. However, it is crucial that instructors are involved in the decision making process. This could mean creating a culture of transparency and explaining the rationale behind these learning objectives to early-career instructors or instructors who get new courses handed down to them. On the systemic side, we believe instructors should be empowered and encouraged to write and iterate on the learning objectives as they emerge based on reflections on everyday teaching experiences, with less bureaucratic dependencies or constraints. Bureaucracy is real and often needed for large institutions like universities to communicate. If we try to make learning objectives that serve as interfaces into top-down black boxes, then we might miss a lot. Finally, as a closing statement, we believe this paper will have been successful (and subsequently have impact) if readers are more curious about learning objectives than when they started.

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