

WIP: Developing a Framework for Ethical Integration of Technology in Instruction

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Background

In a university setting where the adoption of large language models (LLMs) like ChatGPT seems like a foregone conclusion, faculty have responded with varying degrees of enthusiasm, resignation, and denial. And as with most issues of pedagogy, there is lively disagreement among instructors about whether and how to use LLMs with their students [1][2], with some prohibiting LLM use and others swiftly integrating them into their course assignments [3][4][5].

Lagging behind an enthusiastic integration of LLM-based course tools by some in higher education is a serious discussion of ethical concerns and questions about LLMs themselves; this failure may stem in part from a reluctance to voice concerns in the face of institutional enthusiasm and pressure to “fully embrace” LLMs or risk being labeled a “dinosaur” [1][6]. Regardless of cause, this lack of discourse risks ignoring significant issues central to instruction, such as the impact of these tools on learning and the well-being of students and instructors, as well as what these tools mean for the valuation of instructors' labor and higher education overall [1][6]. Additionally, unquestioned alignment with the market's enthusiasm for LLMs may mask ethical concerns about the construction of LLM technology itself, as LLMs' data training processes rely upon the scraping of writers' and artists' creations (often without their knowledge or consent) and the work of low-wage workers who label and annotate data under sometimes exploitative conditions [7]-[10]. LLMs' environmental impacts, as well as the lack of transparency and understanding (even by experts) of how LLMs work also warrant examination [11]-[17].

Such discussions are more than mere procedural niceties; they are foundational to any responsible and reasoned examination of LLMs in the classroom context. As noted by the IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems (IEEE Global Initiative), human and planetary flourishing, along with the building of ethical communities, are the main goals of technology; any technology - no matter how dazzling - that fails to promote such growth is of little, if any, use [18].

Currently, guidance for assessing the ethical issues of using a particular technology or the impacts of a technology on students' and instructors' well-being seem yet to be explored in depth. Most existing guidance is focused on how to integrate technologies rather than whether such technologies should be integrated in the first instance [19]-[23].

Goals

The primary goal of this work-in-progress is to develop and refine a starting framework for analyzing the ethics of classroom technology prior to integration.

Instructors can use and personalize the framework for their decision-making processes regarding their classroom technologies. Such use may enhance instructors' practice of reflexivity and feelings of agency in the face of powerful technologies and social pressures to adopt them. Instructors can also share the framework with their own communities to spark discussion

regarding the ethics of classroom technologies and their impact on faculty and student well-being.

Framework development

The idea for this framework was sparked by the IEEE Global Initiative, which recommends that technological development in autonomous and artificial intelligence be guided by five principles:

1. respect for "internationally recognized human rights"
2. the prioritization of human well-being
3. accountability of the "designers and operators" of the technology
4. transparent operation of the technology
5. minimization of known risks [18]

The framework also uses the IEEE Global Initiative's conception of well-being, which is defined as the "human satisfaction with life and the conditions of life"[18]. Other principles of ethics in the instructional context, such as instructors' duties and responsibilities to students, are included in the form of generally accepted principles of the teaching profession [24][25]. The fields of technology ethics, ethical pedagogy, information literacy, and environmental ethics were also examined to include tenets of responsible technology use in instruction [26]-[31]. The framework's interrogative style is modeled after that of Santa Clara University's Framework for Ethical Decision Making, as questions can encourage reflexivity and personalization [32].

Framework description

Attached as an appendix, the framework has a tripartite structure representing three stakeholders for instructors to consider prior to integrating technology in the classroom: society, students, and themselves. Within each stakeholder group, the principles of purpose, accountability, explicability, and promotion of well-being are explored. The additional principle of accessibility is included in the student stakeholder analysis.

The society portion of the framework is designed to compel instructors to examine the social, economic, and cultural context of the technology and its suitability for the educational context. Thus, the instructor first considers the purpose of the technology and then tackles the question of explicability and whether the technology's workings are intelligible and transparent. A technology's accountability and safety are also assessed by asking whether there are governance regulations and mechanisms designed to address harms of the technology. Impact as measured by human and planetary well-being is also included.

The student component of the framework concerns students' interactions with the technology at hand. Instructors first consider the suitability of the technology in terms of its efficacy in helping students reach learning goals; they then examine whether their students have equal and sufficient access and proficiency to use the technology. Instructors also consider whether the use of the technology promotes students' well-being and dignity, as well the sense of community in the classroom.

The self-reflection component of the framework asks instructors to consider whether the technology suits their teaching objectives and methods and gauges their proficiency in terms of

technical knowledge. The framework further prods the instructor to consider how the technology and its use impact their own well-being, sense of dignity, and their bonds with students.

The sequence of stakeholder groups and their weights in relation to each other can be modified to reflect individual preferences and circumstances. Stakeholder groups can be added or subtracted, and principles can be revised. Once the instructor reflects upon the framework, they can then decide whether to implement the technology in their classroom. Subsequent reflection will likely be needed to assess the outcomes of that decision.

Preliminary results

This framework was presented in a workshop during a conference of university-level composition faculty in February 2024. About 12 people attended the workshop and provided feedback on the framework. The workshop focused on how instructors decide whether to use LLMs in the composition classroom.

Separate from the particulars of the framework, many participants eagerly noted the alacrity with which LLMs have been adopted by some administrators, faculty, and students. There was significant discussion about whether there have been any comparable instances of such speedy adoption of a technology in higher education. There were also some who stated that they weren't technophobic or technologically "inept," but that they felt characterized as "Luddites" because they have adopted a "wait-and-see" approach to integrating LLMs into the classroom. Still others noted that they would like to see research regarding LLMs in the classroom before adopting them in lessons.

As for the framework, workshop participants liked the organization of three stakeholder groups and the various principles. Several commented that the inclusion of instructors as a stakeholder group was particularly welcome. Some questioned whether the framework puts too much responsibility on the individual instructor and not enough on the university to consider whether to integrate LLMs. A related comment was whether the university should be added as a stakeholder, as the introduction of LLMs in university classrooms goes to deeper issues of the purpose of a university education.

The workshop ended with several participants noting that applying the framework required significant knowledge about LLMs. One participant responded that such knowledge is important for making informed decisions, and there was a fair degree of agreement that instructors should learn more about classroom technologies in general.

An anonymous survey regarding the workshop and framework was distributed to participants at the workshop's conclusion; 8 responses were received. The survey had four statements to which respondents registered their degree of agreement on a 5-point Likert scale. A fifth question was an open-ended one asking for any comments.

Questions and responses follow:

Q1: This framework helped me think about what types of technology I use in the classroom. (n=8)

Likert scale	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Number of responses	4	3	1	0	0

Q2: The framework covers the stakeholder groups that are relevant to me. (n=8)

Likert scale	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Number of responses	4	2	2	0	0

Q3: The framework includes ethical principles that are important to me. (n=8)

Likert scale	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Number of responses	5	3	0	0	0

Q4: I will use this framework when planning my courses. (n=8)

Likert scale response	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
Number of responses	3	4	1	0	0

Q5: Please add any comments you have about the framework. (n=4)

- a. "This is a good idea - a deliberate approach."
- b. "I liked how we could disagree about AI and still have a productive discussion."
- c. "The framework can have different outcomes for different people - I think that's ok since we are at least talking about it and we can see people are acting with intention. I learned a lot about LLMs such as their environmental impact."
- d. "The framework sparked great discussion."

While not statistically relevant, these initial survey responses indicate a generally favorable response to the framework and related discussions about classroom technology. Further dissemination and analysis are needed to assess the framework's relevancy and impact.

Presentation mode

In this lightning talk, I will share the framework and preliminary results. In addition to inviting feedback from attendees, I would like to ask:

- Is there a need for a framework like this?
- What is missing from the framework?
- What are other ways for instructors to consider the ethical implications of using a particular classroom technology?

Appendix

Framework for Ethical Technology Integration in Instruction

This framework for ethical technology integration in instruction is designed to help instructors consider their classroom technology use.

Society

- Purpose: What is the technology designed to do? What are the goals of the company selling the technology? What are the unintended uses and consequences of this technology?
- Explicability: Are the technology's construction, workings, and uses intelligible?
- Accountability: How is the technology regulated or governed? Are there mechanisms to address harms?
- Well-being
 - Is the well-being of people prioritized?
 - Is the dignity of people respected?
 - Is the planet respected?
 - Is a sense of community among people preserved?

Students

- Purpose: Is this an effective tool for helping students reach their learning goals?
- Explicability: Do students have equal and sufficient opportunities to learn how to responsibly and safely use this technology?
- Accountability: Are there safety restrictions? Are there mechanisms to address harms?
- Accessibility: Do students have equal and sufficient access to this technology?
- Well-being
 - Is the well-being of students promoted?
 - Is the dignity of students respected?
 - Is a sense of community in the classroom preserved?

Instructors

- Purpose: Does the technology align with your teaching objectives, modalities, style, and methods?
- Explicability: Do you know how the technology was made and how it works?
- Accountability: Do you know how to responsibly and safely use the technology? Do you know how to address harms?
- Well-being
 - Is your well-being promoted?
 - Is your dignity respected?
 - Are the bonds between you and students preserved?

The sequence of components and their weights in relation to each other can be modified to reflect individual preferences and circumstances.

Once instructors have reflected upon the three areas above, they can decide whether or how to implement classroom tools. After a decision has been made, subsequent reflection will likely be necessary to assess the outcomes of that decision and whether modifications are needed.

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