

A Department's Syllabi Review for LLM Considerations Prior to University-standard Guidance

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Abstract

The release and widespread use of generative artificial intelligence causes concern for the future of teaching and learning. Since the release of ChatGPT, some institutions released guidance on its use in education, while other institutions waited for the technology to mature. This study is contextually situated during the Fall 2023 semester at a single university; Unique because the university had not published LLM guidance yet, but the technology had been out long enough for students to become familiar with its use. Through the conceptual lens of Teacher Noticing This study examined (a) whether faculty saw the potential use of LLMs for teaching and learning, and (b) how they responded to the rapid impact of LLMs in the classroom before university-standard guidance. Via document analysis, we found that despite LLM chatbots being widespread for roughly 9 months before the Fall semester, only a third of faculty acknowledged its use in the classroom. Faculty took three positions toward it: encouraged, discouraged, and prohibited. As found in qualitative analysis, most of the language was precautionary and discouraging. Through the lens of Teacher Noticing, we suggest that this is worrisome since faculty beliefs seemed to be mismatched with the enthusiasm and excitement of AI from students. Only a few months later, the university *encouraged* the use of creatively incorporating LLMs in the classroom to foster learning and increase students' awareness of the limitations of the tools. In a technology department especially, instructors falling behind the curve of digital literacy may impact students' satisfaction with their education. Future work should be done to understand how university guidance impacts faculty beliefs and how that translates to pedagogical techniques and learning outcomes.

1. Introduction

Large language models (LLM) and their conversational counterparts like ChatGPT have caused concern among teachers but excitement among students in the past year. While the underlying LLM in ChatGPT has been in iterative development since 2018, when OpenAI released ChatGPT on November 30, 2022, it became the fastest-growing consumer product in the past decade [1], [2]. Less than a week later, there was already the sensationalized headline that, "The College Essay Is Dead." [3]. Unsettled opinions swayed between positioning ChatGPT as the detriment of education and an uncharted enhancement to teaching and learning; And it's too soon to know how ChatGPT, and other LLM applications, will transform education. Nevertheless, the chatbot-in-the-classroom gives more power to the students and takes away teachers' control. The potential of these chatbots to transform teaching and learning, and their widespread use among students, warrants research to understand how these applications were brought into the classroom.

By drawing upon concepts of Teacher Noticing [4] and Teacher Beliefs [5] we are concerned with the following two research questions. RQ1: *Do instructors see the potential uses of LLMs*

for teaching and learning? RQ2: How do instructors respond to the uses of LLM and make sense of how these can be used in their classrooms?

2. Background

LLMs are statistical models that estimate the next word in a given sentence based on the probability distribution of natural language from a large corpus of data [6]. Without delving into technical specificity, the company OpenAI took an LLM and made it a commercial product: ChatGPT [7]. This product lets users ask the chatbot questions and receive answers—with dazzling grammar, sentence structure, and arguments. However, these answers (generated from an LLM) are just the “most likely” next string of words given an input. Thus, there is no truth-grounding; they can be incorrect, nonsensical, biased, and illogical under the guise of a well-packaged paragraph [2], [7], [8]. While other companies have created products out of their LLMs, OpenAI’s ChatGPT colloquially receives the public’s attention and will be used as an example of LLMs in this paper.

Following the release of ChatGPT, UNESCO soon after published guidance about using ChatGPT and artificial intelligence (AI) in the classroom. In this “quick start guide,” multiple roles for ChatGPT in higher education were identified. For instance: as a personal tutor, a Socratic opponent, a reflective study buddy and idea generator, or an explorer [9]. Moreover, Stanford’s Center for Human-centered Artificial Intelligence (HAI) purports benefits of ChatGPT such as allowing teachers and instructors to scale their learning, adapt to individual interests, and improve learning accessibility—all without fear of peer judgment [10]. Of course, though, students can use ChatGPT to cheat. Whether writing essays or answering homework questions, students may be passing off generated text as their own [2], [8]. This requires caution, but this disruption can lead to an exciting foray into new skills, new domains, and new meaning behind life, work, and education [11].

3. Conceptual Framework

This study is guided primarily by the concepts of Teacher Noticing and Teacher Beliefs. These two concepts inform our research questions and guide our analysis and findings. First, Teacher Noticing originated from Sherin et al.’s [12] book that conceptualized how a teacher’s noticing-ability in the classroom impacts the dynamic teaching and learning processes. Initially constructed, ‘noticing’ is an ephemeral phenomenon. It happens instantaneously and under the noise of other, more conscious, mental processes. This construct stems from two psychological concepts: Teachers have *selective attention* to notice a situation in the classroom, then enact professional *knowledge-based reasoning*. However, beyond just in-the-moment, a teacher’s lesson plan, forethought, and planning can impact the dynamic interactions during instruction. Under the conceptualization of the “professional vision” construct, a teacher can observe what is happening inside and outside of the classroom and use their professional perspective to inform teaching and learning methods [13]. Thus, we use Teacher Noticing in this study in a less fleeting sense and more as a proxy to understand if syllabi can be a proxy for whether instructors notice the impact and disruption of LLMs in the classroom.

Second, a teacher’s beliefs dig deeper than a teacher’s knowledge. Faculty’s knowledge about teaching and learning methods does not mean they will accept—and adopt—these methods.

Their beliefs toward those methods drive their actions [5]. While beliefs can concern many elements of educational practice, faculty's beliefs toward the use of technology in pedagogy will influence classroom integration. If faculty hold negative self-beliefs about their digital literacy and cannot confidently arrange their instruction to include technology within the course, then their beliefs can lead to the exclusion of advanced pedagogical methods [5], [14]. In other words, if the faculty do not understand how to use LLMs and incorporate them into their teaching, they may ignore them altogether. Moreover, some research on faculty beliefs and attitudes also indicates that even when faculty understand the benefits, they still may not *choose* to incorporate it [15]. While we do not look at the formation of beliefs in this study, the notion that beliefs can be shaped by socio-cultural actors and professional experiences [5] helps us draw conclusions and frame the findings of this study. Thus, we look at syllabi excerpts from the lens of faculty beliefs and attitudes to better understand how faculty are making sense of LLM's benefits and detriments to the classroom.

4. Method

The set of syllabi in consideration for this study came from the computer and information technology (CIT) department at an R1 research university. The corpus of syllabi were provided from a departmental administrator whom catalogued all the syllabi for the semester. These syllabi were limited to the Fall 2023 semester and, from both undergraduate and graduate level courses, included 60 unique syllabi. Through the lens of Teacher Noticing (Sherin, 2014) and via an individual document analysis of syllabi data, we approached the first research question: *Do instructors see the potential uses of LLMs for teaching and learning?* Then, we analyzed the set of syllabi that include LLM usage to qualitatively answer the question: *How do instructors respond to the uses of LLM and make sense of how these can be used in their classrooms?*

Through basic thematic analysis [16], [17], we first organized the syllabi data by whether they included a mention of LLM, and which faculty corresponded to the syllabi. Then, pulled out the mentions of included LLM acknowledgement into a separate sheet of analysis to qualitative analyze the themes of "type of usage" and more detailed differences within each type of LLM usage. The first author led the data organization and thematic analysis, and then shared the findings and analysis with the second author to cross-check the subsequent results of analysis. The research team discussed the findings together and agreed on the results in the following section. Then, with our findings, we compared the usage of LLMs in classrooms prior to standardized university-wide guidance with the recommendations on generative AI from the official university communications. Note from the authors: ChatGPT and any other LLM were not used in any part of this study whether brainstorming, analysis, or writing.

5. Results

5.1. Inclusion of LLMs in syllabi

To approach our first research question, in total, 16 out of 60 (27%) unique syllabi included an acknowledgment of the use of LLMs in the classroom. Broken down further, 11 out of 38 (29%) undergraduate-level syllabi and 5 out of 22 (23%) graduate-level syllabi included an LLM acknowledgment. At the undergraduate level, LLM acknowledgments were found in the same proportion in lower-level (100 and 200-level) and upper-level (300 and 400-level) syllabi.

A single instructor or professor can teach multiple courses, though, and so LLM acknowledgments were also counted by faculty. Out of the 60 total syllabi, there were 31 unique faculty. And some faculty who acknowledged LLM taught more than one course using the same language, structure, and template for their syllabi. So, out of the 31 faculty, 11 (35%) unique faculty acknowledged using any aspect of LLMs in their course. The proportion of unique faculty that included, or excluded, an LLM acknowledged were analyzed by their rank (Assistant, Associate, or Full professor) were analyzed too. However, no differences were found; 54%/52% of professors who included/excluded LLM acknowledge were ‘Assistant’, 27%/30% were ‘Associate’, and 18%/17% were ‘Full’.

5.2. Types of LLM policy in syllabi

To approach our second research question, the faculty that acknowledged LLMs took three main policy positions, or stances toward LLMs, in their syllabi: (1) prohibited, (2) discouraged, and (3) encouraged. Faculty often modified these positions with variations of their own; the following section details some of these variations and includes faculty quotes (*indicated by italics*) from their syllabi.

5.2.1. Prohibited

The usage of LLMs in the classroom is not allowed. At its core, faculty who prohibited the use of AI either argued that it is **counterproductive** to learning or that using means directly engaging in **academic dishonesty**. For the former, faculty said that using LLMs is “*counterproductive to the reason you are here [at university]—to learn.*” These were sometimes expanded to explain why it is counterproductive, for instance, “*This technology has the potential to replace your roles in future jobs unless you are able to differentiate your capabilities from those of ChatGPT.*”

Other cases of prohibited usage made a more direct and explicit mention that the use of LLMs is “*considered to be engaging in academic dishonesty and will be subjected to the university’s policies for academic dishonesty.*” In some cases, this verbiage was included without further explanation. In other cases, these lines of legalese were alongside language that LLMs are counterproductive to learning and that there is a risk of the generated output being incomplete, biased, or incorrect, and thus hurting the student’s grade in the course. One faculty summarized these positions as: “*Don’t cheat. It’s not worth it. You won’t like what happens. Don’t let one bad decision ruin your academic career.*”

5.2.2. Discouraged

The usage of LLMs in the classroom is discouraged, but in the case that it is used, it is required to disclose and cite the use of it with an explanation about the use. These faculty often built upon arguments that LLMs are counterproductive to learning. One faculty began their verbiage with, “*students in this course are responsible for developing knowledge, critical skills, ethics, and values to be successful in their careers,*” then later concluded their position by saying if LLMs are used, then “*you are required to notify the instructor or TA on how exactly the technologies were used (e.g., an exact list of all prompts used) and explain how the output was adapted for the assignment submission.*” However, outside of approved usages, these syllabi do not discuss penalties for using LLMs.

Moreover, some faculty expanded on that notion and treated the disclosure of LLM usage as a place for reflection. These faculty did not discourage the usage as much; they positioned LLM usage as a learning opportunity if used. They required more detail behind the usage of LLMs, for instance, “*students are required to provide all relevant chat history (prompts and responses) with the AI agent...*” and included the requirement of, “*a genuine reflection on [why] they wanted to use AI ... how they expected AI to support their learning ... how they tailored AI-generated content ... [and] the overall learning experience with AI support.*” These responses treated AI/LLMs more favorably than a strict discouragement but were not considered *encouragement* because of the many stipulations alongside the AI/LLM usage.

5.2.3. Encouraged

The usage of LLMs in the classroom is a tool—it is helpful for brainstorming and idea creation. While this verbiage was not as often included in the syllabi, it was the most liberal position toward LLM usage in the classroom. At its core, these positions (i) supported the use of the tool, (ii) required students to understand the limitations of the tool, and (iii) still barred its use for quizzes, exams, and reports. The syllabi data do not specify which specific activities it is encouraged for (just that it is barred for quizzes, exams, and reports).

Part of the faculty that encouraged the use of LLMs in the classroom made an explicit mention to external guidance on generative AI. While other faculty may have consulted guidance on generative AI, they did not explicitly mention it. For context, this guidance came from other internal organizations at the university and was not the university’s official guidance on generative AI (as this study examines LLM usage prior to university standard inclusion). These syllabi excerpts covered additional concepts like the “machinery” behind LLMs: “*while not all tools incorporate user input into their training, it’s a very common practice and can lead to breaches in the copyright or NDA agreements.*” Moreover, these excerpts place emphasis on the student interpreting and verifying the results of the LLM—while the student is encouraged to use it to enhance their learning, they must go beyond what the LLM tells them and expand upon its knowledge. In other words, “*Generative AI is great to help with ideas but shouldn’t be used with no thought.*”

6. Discussion

This study, and its data from Fall 2023, is contextually situated in a liminal place where LLM usage had somewhat matured, yet the university had not released an official generative AI policy on the usage of LLMs. As the fall semester began roughly 9 months after the release of ChatGPT, there was a reasonable amount of time for faculty to reflect on teaching practices, adapt their instructional pedagogy, and recognize the potential for academic disruption. However, even in an applied technology department at a major university, less than half the faculty, and less than a third of the course syllabi, included an acknowledgment to LLMs.

At the end of the Fall 2023 semester, the official university guidance was released. Within the first click of navigating this guidance, the university offers “considerations for your syllabus and course” that includes a wide array of example syllabus language and a general position that the use of AI can help students explore their own learning as long as faculty and transparent and clear in their expectations. This guidance goes on to include how assessment and evaluation are

impacted by AI, and how the development of discipline-specific expertise can be fostered through intentional AI usage. Finally, multiple examples of creative pedagogy with AI are offered to faculty for integration into their course. These integrations included supporting the use of AI to help frame faculty's expertise to different audiences, showcasing LLMs outputs so students can dissect knowledge and explore arguments, and assisting difficulties in writing ability. The university stated they do not centrally support any one AI tool, but rather recommend to use of an AI tool at the faculty's discretion [18]. Moreover, the university states that this guidance will evolve and be updated every semester [19]. Each university's position varies, though, where other universities have enacted stronger encouragement toward the use of LLMs by offering free prompt engineering courses [20] and bespoke LLM tools for their educational purposes [8], [21]. More research should be done about how university-wide policy impacts faculty beliefs and classroom learning.

As shown in the Results, most of the language about LLMs in syllabi was precautionary and centered around discouraged or prohibited use. While these syllabus-LLM-disclaimers cannot offer much insight into instructional teaching practices, the harsh language in these LLM statements could be indicative of faculty beliefs on LLMs such as ChatGPT. So, it is of concern that these teachers' beliefs about discouraged and prohibited usage of AI in the classroom could impact the effectiveness of a well-respected classroom. Of course, it is hard to expect all faculty to be on top of the curve for advanced digital literacy, but in the CIT department, students are exceptionally tech-savvy. If the instructors do not match their level of adoption and enthusiasm about ChatGPT, then students may feel dissatisfied with their education and use chatbots outside of controlled bounds.

As noted in Ertmer and Ottenbreit-Leftwich [14], the lack of official resources may have been a factor in faculty not incorporating LLM into their syllabus. Similarly, professional development for LLMs may have been lacking which reduced faculty's beliefs that they could successfully incorporate LLMs in the classroom. However, insufficient qualitative depth about faculty's beliefs may limit the conclusions of this study. In this data, there is a lack of clarity behind the motivations of some faculty to not include LLMs and the types of policies that faculty enacted in their syllabi. The inclusion (or exclusion) of LLMs may not have been a conscious decision; rather it may have been the result of a whim or recommendation of a colleague that was mentioned in passing. Moreover, this study is treated in a case-study fashion, where a single university was in focus during a single semester. This is important to note as future research can (a) follow up to see how university-wide guidance impacts these same faculty and (b) investigate faculty beliefs and uses of LLMs in the classroom more broadly.

7. Conclusion

The widespread release of commercial LLM products like OpenAI's ChatGPT has caused both concern and excitement in educational practices. Universities had to respond to the disruptive potential of this technology and combat students' inclination to use it regardless. Through the lens of Teacher Noticing and Teacher Beliefs, this study examined how LLM-related language in syllabi at a major university during the Fall 2023 semester indicated faculty's usage and beliefs about ChatGPT. Through document analysis, this study reported that less than a third of syllabi included an acknowledgment of ChatGPT, and the acknowledgments often barred or discouraged the usage of ChatGPT in the classroom. After the conclusion of the semester, the university

released its official generative AI guidance. In this, the university encouraged the use of creatively incorporating LLMs in the classroom to foster learning and increase students' awareness of the limitations of the tool. Future work should be done to understand how university guidance impacts faculty beliefs and how that translates to pedagogical techniques and learning outcomes.

8. Acknowledgments

This work was supported by the U.S. National Science Foundation under award # 2134667. The views and conclusions contained herein are those of the authors and should not be interpreted as representing the official policies, either expressed or implied, of NSF or the U.S. Government.

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