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Changing Education With AI: Macro to Micro

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Abstract: This is an exploration of AI in a Class and a University as an education resource. The authors represent professors and students at two Universities in the same city in the Midwest. Together this combination attempted to wrestle with how AI could be and should be incorporated into writing, business, and many other disciplines. It is developed in Course Design, Assignment Design, and its impact on Learning Objectives. Further, it is extended to writing as so many of our colleagues are engaged in writing-related classes. One of the students in the project works in a Writing Center and that has led to several workshops in the area. It started simply with a conversation that grew loud and then a request for a workshop and ultimately a series of workshops. These are reported on as well as the impact on the class designs. Ultimately the results include how the students feel, what is being done in the sequence of classes that the authors facilitate, and finally, the workshops produced in the local area.

Key words: artificial intelligence, learning from students, course design, assignment design, learning objectives

JEL codes: A22, D8, M0

1. Introduction

The idea began very simply; the two lead authors sat at the table in the center of the Honors College one day trying to figure out how to work the new school class software and at the same time work with AI. Both had been imposed on us. The system was a decision of IT, and the AI came from one of our students challenging us to think about the future. Our worktable in the middle of the office garnered much attention as we brainstormed ideas to deal with both challenges. People asked, “Why worry about this in early May for a course happening in September?” There were simple ideas like ban AI — really! Have students write everything in pencil in old blue books — it could be a university museum! There were legitimate concerns for learning objectives. Some asked why is this a problem? Ultimately there was a request to lead a discussion for the Honors College on AI and the ethical challenges.

The meeting was lively, and contentious, with debates about what are the ethical challenges of AI, what are the learning opportunities, and the challenges of AI use in assignments and in classroom exercises. At this point, we agreed to continue these discussions for the Honors College and the Business College using a Macro-to-Micro perspective in four sessions.

1) What are the Macro and Ethical issues?

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2) What will our students face at work?

3) What do we need to look at in Designing a class?

4) What do we need to think about in designing assignments?

The development became more interesting as we invited two students who are active in using AI to join us in this project. They add perspectives in the use of AI, and in what is important to students in the 21st century. This is particularly important as they explained or challenged concepts like hours out of class and in class. As professors, it is easy to be hung up on a class structure that looks like the year before. AI and the student perspective is providing a chance for more radical change. How do students learn? How can AI help in learning in class and out of the classroom? AI makes the world of work more efficient, could it make the educational experience more efficient leaving time for internships, and other opportunities that add to student experiences and preparation for life while at the university?

The Production of the four workshops has been a very interesting process with the professors coming up with an outline and the students offering feedback and suggestions for change. We used a lot of AI to develop the sessions knowing it was historical but still finding it a quick and easy way to look at the challenges of AI. The relevancy to this became more important as the new software really encouraged the written word as opposed to graphics etc. The paper and presentation will use the workshops to present ideas from lively faculty discussions on AI in class design, and assignment design as well as some of the overall issues. We must all remember that the term Artificial Intelligence was coined in 1956 by John McCarthy, what you see today is the mushrooming of AI. How will it impact academia?

What began as a series of educational sessions for the Honors College, grew across the University. At the Honors College, our initial discussions centered on AI ethics. While this was insightful, the real depth came when we structured four distinct programs for the Business College. These sessions progressed from a broad macro view of AI to specific aspects including understanding the AI knowledge students would need in the workforce, integrating AI into course design, and incorporating AI into assignment creation.

These virtual sessions conducted via Zoom, spanned May, June, and July in 2023. During this period news reports were focusing on AI's potential influence on education. At the fall meeting of the Business College, there was a noticeable demand for an established AI policy.

It is worth noting that the participants were really dedicated. Partially because summer days are so valuable in Michigan. The faculty were notified by simple posts in their departments including a Zoom link. There was no barrage of emails, no big meeting. They were committed and interested.

The authors firmly believe that educators globally must adapt to and embrace AI. This could include revising learning objectives or acknowledging that, just as with cell phones and calculators, some tasks might be completed more swiftly with AI. We must approach the challenges of AI not as simple challenges, but in a similar way to how we've approached cell phones, Google, and computers over the years.

This is an opportunity to help our students learn about the use of one more tool in their tool cheat that may empower them to make the world a better place for a few or many. AI is predicted to grow rapidly as seen in Figure 1[1].

[1] Available online at: https://www.precedenceresearch.com/artificial-intelligence-market.

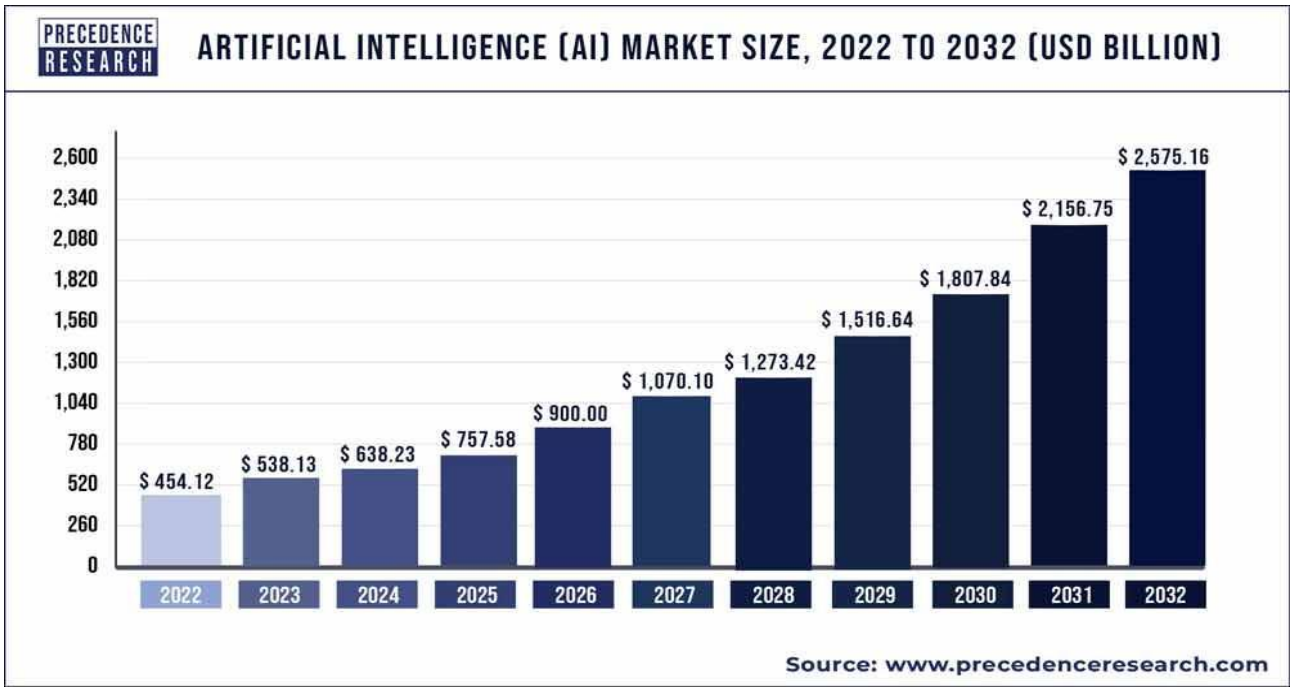

Figure 1 AI Projected Market Size.

2. Methodology

Driven by our initial discussions, we recognized the need to approach the matter from a Macro-to-Micro perspective. This comprehensive approach was divided into four sequential workshops addressing the following:

1) Understanding the broader, macro-level ethical implications of AI.
2) Anticipating the challenges and situations students might face at workplaces shaped by AI.
3) Delving into class design in an AI-integrated educational environment.
4) Crafting assignments in a setting where AI plays an influential role.

These workshops were collaboratively developed. As educators, we drafted outlines, and two students deeply engaged with AI-provided feedback, ensuring the material was relevant, updated, and resonated with their generational cohort.

The model for this was the Next Generation classroom (P. Lane & R. Lafferty, 2021) and the Next Generation Reconceived (P. Lane & R. Lafferty, 2022) which are both about the class used for the AI Model. They explain the nature of the four-course sequence in the Honors College of the University. These four classes extend across two semesters. The focus of the classes is to use the Design Thinking process as used at the Design School at Stanford University (Figure 2) and the concept of Cocreation from MIT (A. Smith & M. Thompson, 2022). The students chose one of the 17 SDG goals and worked at defining a piece of the problem for a country in the Global South in the bottom half of the world economic pyramid.

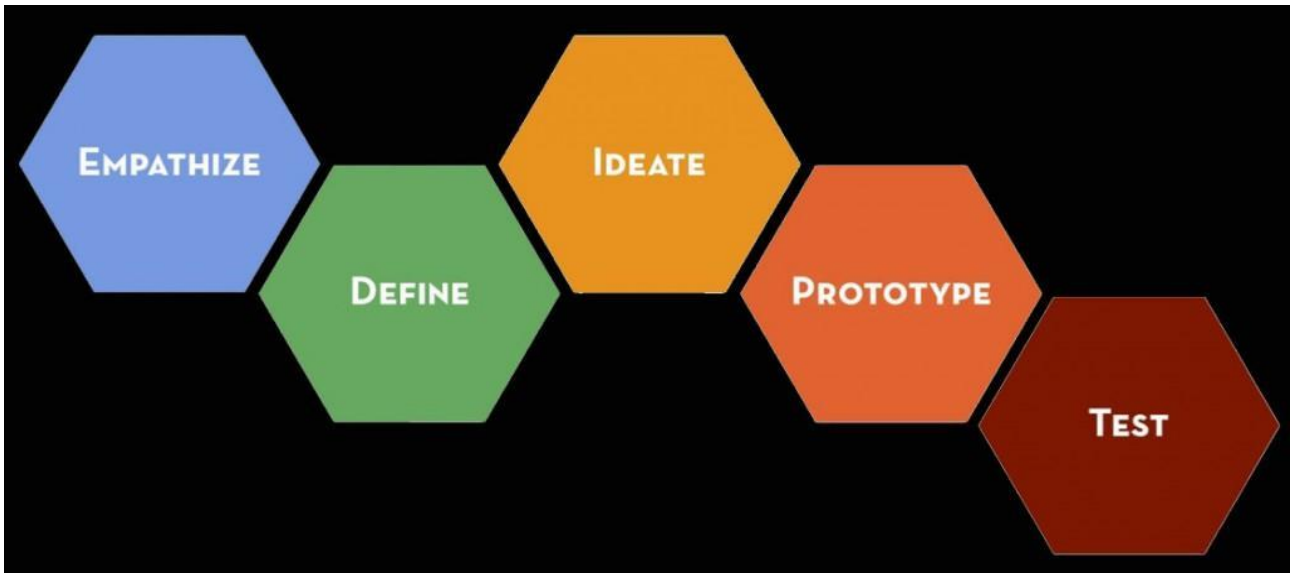

Figure 2 Stamford Design Thinking Model[2].

2.1 Understanding the Broader, Macro-Level Ethical Implications of AI

The first workshop aimed at painting a broad picture of AI's role in our world. Participants were introduced to the global shifts of AI, from socio-economic changes to alterations in global power dynamics. At this macro level, the session tackled complex issues including:

- Data privacy and the potential for surveillance states.
- AI's role in potentially exacerbating or mitigating socio-economic disparities.
- Bias in AI and the ethical implications of decisions made by non-human entities.

2.2 Anticipating Challenges and Opportunities in AI-Shaped Workplaces

Shifting our lens slightly inward, the second workshop focused on the direct impacts of AI on the future professional lives of students. Recognizing that many of the students will soon join workplaces intertwined with AI, we explored:

- The necessity of understanding AI even for non-tech roles, given its pervasive nature.
- Preparing students for hybrid workplaces where human-AI collaboration is the norm.
- The changing dynamics of leadership and team dynamics with AI teammates.

2.3 Class Design in an AI-Integrated Educational Environment

Narrowing our focus further to the micro-environment of educational institutions, this workshop explored the day-to-day implications of AI for educators. Discussions revolved around:

- How AI could transform pedagogy, possibly leading to more personalized learning experiences.
- Potential pitfalls, such as over-reliance on AI, lead to reduced critical thinking or human interaction.
- The balance between leveraging AI for efficiency and ensuring educational integrity.

"Technology offers the prospect of universal access to increase fundamentally new ways of teaching," said Graduate School of Education Dean Daniel Schwartz in his opening remarks. "I want to emphasize that a lot of AI is also going to automate really bad ways of teaching. So [we need to] think about it as a way of creating new

[2] Available online at: https://web.stanford.edu/class/me113/d_thinking.html.

types of teaching."[3]

2.4 Crafting Assignments With AI Influence

The most micro level of our series, this workshop, concentrated on the details of classroom assignments in an AI-influenced setting. Topics included:

- The use of AI tools for plagiarism checks and grading.
- Encouraging students to use AI as a research aid while ensuring original thought.
- Ethical considerations when students use AI tools to craft assignments.

The formation of these workshops was truly a collaborative effort. Our role as educators was to set the foundational framework. We drafted initial outlines, drawing from our years of educational experience and familiarity with pedagogical goals. However, to ensure the content was not just theoretically sound but also practically relevant, we engaged two students who had hands-on experience with AI. Their input was invaluable. They challenged some traditional notions, introduced fresh perspectives, and ensured that the material was updated and relevant to their generation's unique challenges and perspectives.

3. Short Term Results

As AI continues to evolve and impact various sectors, its influence on education is profound, causing the authors to reimage our traditional pedagogical approaches.

3.1 Macro-Ethical Insights

The initial workshop provided a platform for participants to voice their concerns and opinions about AI's broader societal impact and the potential pitfalls of AI, particularly concerning equity, transparency, and data privacy. Participants expressed concerns about AI systems inadvertently cementing existing biases, thereby perpetuating societal inequalities. They also underscored the potential risks associated with opaque AI algorithms making significant decisions without human oversight.

The overarching sentiment was clear. While AI holds immense potential, it's imperative to tread with caution, ensuring its deployment doesn't violate individual rights or accentuate societal disparities. One of the challenges is the number of AI platforms as seen in Figure 3.[4]

3.2 AI at Work

The conversation transitioned to the ever-present presence of AI in the professional landscape. Participants acknowledged the ubiquity of AI-driven tools and platforms in modern workplaces. The consensus was educational institutions must be ready to prepare students for this AI-augmented future. The discussion gravitated towards the importance of instilling a mindset of adaptability in students. In an ever-evolving technological world, the ability to continuously learn and upskill would be paramount for staying relevant.

3.3 Class Design

The focus then shifted to the classroom, the center of the educational experience. Participants discussed the balance between retaining the invaluable human touch in pedagogy and capitalizing on AI's efficiencies. A prominent idea that emerged was "blended learning". This model, which is rapidly gaining traction, marries traditional teaching methodologies with AI-driven tools to offer a more personalized and effective learning

[3] Available online at: https://hai.stanford.edu/news/ai-will-transform-teaching-and-learning-lets-get-it-right.
[4] Available online at: https://c3.ai/what-is-enterprise-ai/awash-in-ai-platforms/.

experience.

Figure 3 Many Different AI Platforms.

3.4 Assignment Design

The atmosphere changed as participants discussed the role of AI in student assignments. While some participants championed the potential of AI-powered tools for grading and assessment, especially for tasks demanding objectivity, others were staunch advocates for human judgment. They argued that when it comes to subjective assignments, which often demand nuance, context, and a deeper understanding, human evaluators.

The feedback was completed with insight from our students. They emphasized the role of AI as a tool for efficiency in the educational process. By automating certain elements of learning and assessment, AI could potentially free up valuable time. This could pave the way for students to engage in other experiences including internships, research projects, or diverse extracurricular activities, which may in turn enhance their learning and overall mental and physical health.

4. Results After Four Months

There have been five exciting results. First, a stream of participants including some of the most ardent against using AI for ethical and other reasons have tried it and come to our same table with exciting stories of student learning because AI took them further into topics quicker. Other faculty were surprised at how scared the students were to use it for fear of crossing a plagiarism line. Others were excited about getting students excited about a topic with AI and then sending them off too many other sources.

Taking a dose of our own recommendations AI has been incorporated into the work one of the authors does in Nicaragua as a technology that can help the catch up. Since free AI tends to be a couple of years out of date it is great for looking up general information and understanding more historical information. The problem in

Nicaragua is the base of information being scanned is also much thinner than in the northern hemisphere, so it is important to double-check the facts.

The sequence (four classes) changes have gone well. Evan has been a leader in trying to get the students fully engaged in using AI for various kinds of assignments. It has been good to have a peer teacher in the case of AI as the students feel more comfortable and he shares how he uses it at work, in school, and in organizing his life for himself and helping his father in his investment business.

This has led to a much greater comfort level of the students in using AI in sequence. They know that the faculty is supportive, and that Evan is there to help them as they attempt things in AI related to the courses of the sequence. Figure 4 is the responses to how comfortable the students in the class were with AI. This is a screenshot of the actual virtual Jambord.

Figure 4 How Students Feel About AI 11/1/203

The most exciting part of our work has been the number of presentations for faculty and writing centers that Carson Lafferty has done in the Area including at the University of the authors.

Carson Lafferty presented to the entire Aquinas College faculty about the role of Artificial Intelligence in the college classroom. His presentation was received quite well by the faculty and sparked a conversation among the professors about what their individual classroom policy on AI should be. Aquinas College does not currently have a school-wide AI policy, so it is up to the professors to determine the extent to which students in each of their classes can utilize AI as a tool.

Carson also presented at the Michigan Writing Centers Association (MiWCA) Conference on October 28th, 2023. He led a discussion regarding how writing centers and writing center consultants can utilize AI during meetings with students about their writing. Using AI to check grammar or spelling, help in the brainstorming session, or ask it to help reword certain sentences or paragraphs were just a few ways in which members of the conference helped think during Carson's presentation.

As with everyone who has interacted and has an opinion on AI, the perspectives of the professors and writing center consultants were split. Some full-heartedly supported AI in the classroom or writing centers while others were vehemently against it, with few people in between. The objective of Carson's presentations on AI was not to

persuade or convince the attendees of the future role AI will play. Rather, he presented to inform about the reality that AI is here and here to stay.

5. Conclusions

Incorporating AI into an academic setting goes beyond merely introducing new technology. It signifies a deep transformation in teaching methodologies, the ethical dynamics of education, and the fundamental architecture of learning. Our journey into integrating AI in contemporary classrooms revealed its potential to both streamline processes and improve and enhance student engagement. However, within the positive lies a critical consensus. AI should serve to augment and enrich the human-centered core of education, not replace it.

Reflecting on AI's trajectory since John McCarthy's seminal introduction of the term in 1956, we must consider its impact on the world of academia[5][6]. Our experiences at the Honors College and Business School act as a window into this evolving era, emphasizing the importance of ongoing conversations, cross-disciplinary cooperation, and adaptability as we navigate the transformative waves reshaping the educational landscape.

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