



Unleashing the Potential of Human-AI Partnership: Insights from Designing Instructional Material with ChatGPT

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Explore the
application of
generative AI in:

Design

Development

Instruction

The Courses

- A graduate-level course in instructional technology – focusing on collaborating with AI in the production of instructional materials
- A graduate-level mathematics education course catering to practicing secondary mathematics teachers – focusing on equity issues within mathematics education

Collaboration with ChatGPT 3.5

1. Course Syllabus

My first prompt:

“Design a course syllabus for the topic of collaborating with AI in the field of production in instructional technology. The students need to design and develop a product to use in education and/or training.”

Default (GPT-3.5)

design a course syllabus for the topic of collaborating with AI in the field of production in instructional technology. The students need to design and develop a product to use in education and/or training.



Course Syllabus: Collaborating with AI in Production for Instructional Technology



Course Overview:

This course focuses on the integration of artificial intelligence (AI) technologies in the field of instructional technology with a specific emphasis on designing and developing educational products for use in education and training. Students will explore the theoretical foundations and practical applications of AI in instructional technology, collaborate with AI systems, and develop innovative solutions to enhance the learning experience. Through hands-on projects and case studies, students will gain the necessary skills to create AI-driven products that facilitate effective teaching and learning.

Course Objectives:

By the end of this course, students will be able to:

1. Understand the fundamental concepts and theories of AI and its role in instructional technology.
2. Analyze and evaluate existing AI technologies and tools in the context of education and training.
3. Collaborate effectively with AI systems to design and develop educational products.
4. Apply design thinking principles to create innovative AI-driven solutions for instructional purposes.
5. Implement AI algorithms and techniques to enhance the learning experience.
6. Evaluate the ethical considerations and implications of using AI in education.
7. Demonstrate effective communication skills in presenting and explaining AI-driven products.

Course Duration: 15 weeks

Course Outline:

Regenerate

Week 1: Introduction to AI in Instructional Technology

- Overview of AI and its applications in education and training
- Historical context and current trends in AI integration
- Ethical considerations and challenges in using AI in education

Week 2: Understanding AI Technologies

- Machine learning, deep learning, and natural language processing
- AI algorithms and techniques relevant to instructional technology
- Exploring AI tools and platforms for educational product development

Week 3: Design Thinking and AI in Education

- Introduction to design thinking principles
- Applying design thinking frameworks to AI-driven product development
- User-centered design approaches for instructional technology

Week 4: Collaborating with AI Systems

- Interaction design with AI assistants and chatbots
- Integrating AI-based recommendation systems
- Hands-on activity: Building a basic AI-driven conversational interface

Week 5: Data Collection and Analysis for AI

- Data gathering and preprocessing techniques for AI applications
- Analyzing educational data to improve learning outcomes
- Implementing data-driven decision-making strategies

Week 6: Implementing AI for Personalization

- Adaptive learning systems and personalized instruction
- Applying AI to develop individualized learning paths
- Case studies on personalized learning platforms

Week 7: Natural Language Processing in Instructional Technology



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1. Course Syllabus

2. Explanations of topics it produced

Course Objectives:
By the end of this course, students will be able to:

1. Understand the fundamental concepts and theories of AI and its role in instructional technology.
2. Analyze and evaluate existing AI technologies and their applications in education.
3. Collaborate effectively with AI systems to design and develop instructional materials.
4. Apply design thinking principles to create innovative instructional solutions.
5. Implement AI algorithms and techniques to enhance learning experiences.
6. Evaluate the ethical considerations and implications of AI in education.
7. Demonstrate effective communication skills in presenting AI-related projects.

ci what are the fundamental concepts and theories of AI and its role in instructional technology.

 Fundamental Concepts and Theories of AI in Instructional Technology:

1. Artificial Intelligence (AI): AI refers to the development of computer systems capable of performing tasks that typically require human intelligence. It involves the creation of intelligent machines that can perceive, reason, learn, and make decisions. In the context of instructional technology, AI is leveraged to enhance teaching and learning processes.
2. Machine Learning (ML): Machine learning is a subset of AI that focuses on algorithms and models that enable systems to learn from data and improve performance without being explicitly programmed. ML algorithms analyze patterns and make predictions or decisions based on the data provided. In instructional technology, ML can be used for adaptive learning, personalized recommendations, and data analysis.
3. Deep Learning: Deep learning is a subfield of ML that uses artificial neural networks

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1. Course Syllabus
2. Explanations of topics it produced
3. How would a professor introduce XYZ topic to students?

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1. Course Syllabus
2. Explanations of topics it produced
3. How would a professor introduce XYZ topic to students?
4. Asked for real-life scenarios, case studies, mini lectures
5. Assignment creation, rubrics

“Change this entire course to collaborating with AI to develop instructional materials. Give me a 7 week syllabus.”

Lessons Learned

- How to use ChatGPT features (copy, share, etc.)
- How to write a good prompt
- How to make a rubric in table format
- A lot of my own expertise in both pedagogy and content evaluation came into play
- I also taught the class using the instructional materials I created through my AI collaboration
- My students kept forgetting to use AI without me specifically telling them to

The Second Course

A graduate-level mathematics education course catering to practicing secondary mathematics teachers – focusing on equity issues within mathematics education

- Discussion Prompts
- Way questions and answers were posed to students
- Final equity action plan of the course

Equity in Mathematics Education

- Read the book “Math for Life” by Jeffery Bennett

- Learn about quantitative reasoning/quantitative literacy

Resource hunt: Share and modify

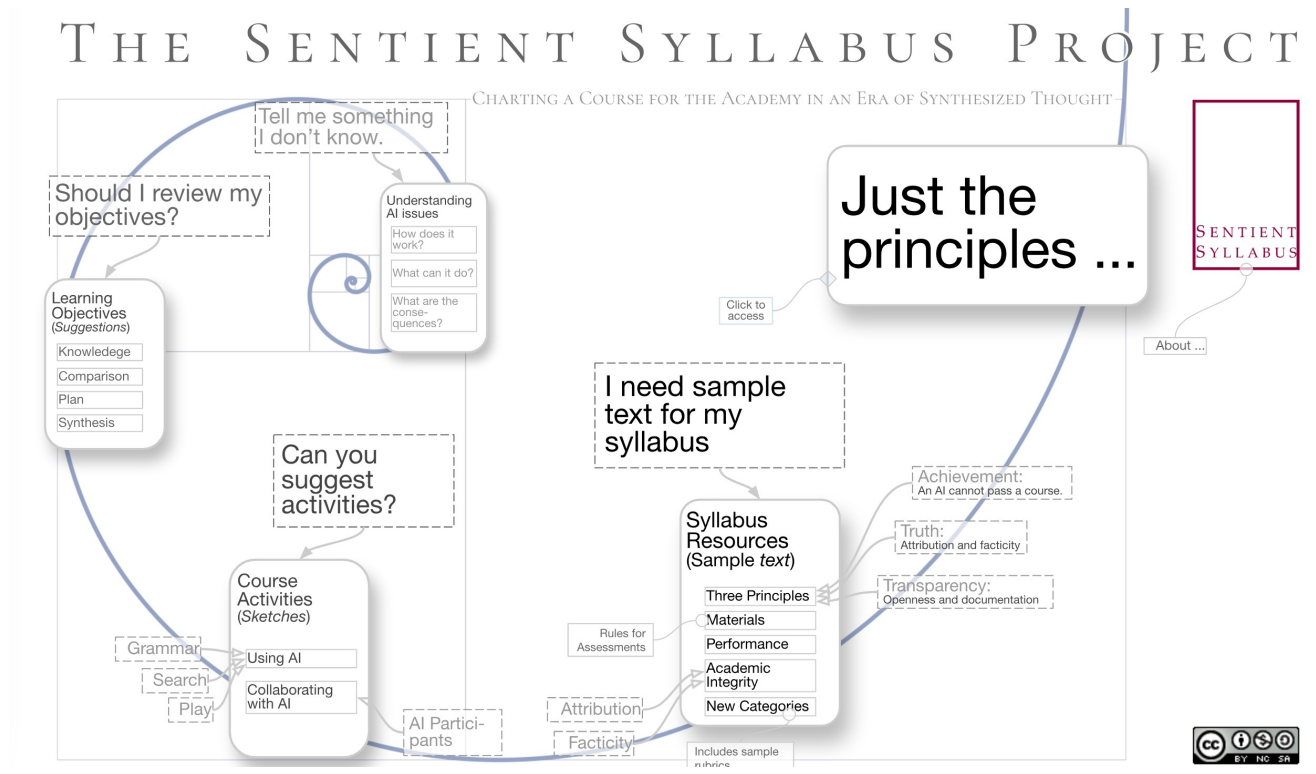
- Explain the resource you found and how it could be useful to you.
- How would you modify the resource?
- What is the audience?
- How does the resource fit into the course?
- Resources might be a lesson find or general resources.

Equity Action Plan

- Final project in the course.
- Instead of being prescriptive, the directions are very brief.
- Very open-ended other than a scoring rubric.
- Students are encouraged to cater the project to their own classrooms.

Syllabus Resources

- The Sentient Syllabus Project:
<http://sentientsyllabus.org>



Parts of this syllabus highlighted in grey came from <http://sentientsyllabus.org/>



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We expect benefits from encouraging the open use of AI tools. (1) Students will become competent in the use of AI tools, (2) the risk-benefit balance of illicit use will change, and (3) students will understand the AI's weaknesses and their own strengths.

Documenting AI use. Throughout this term, you will maintain a journal that documents significant interactions with AI tools, for course credit. Document your prompts, the AI's responses, and how the response was used. You should include the documentation that you may have appended to other submitted work, but also exploratory use of the tools, and reflections on your experience. If you have a lengthy conversation with the AI, you may use an ellipsis "[...]" to truncate its response, but you must include your own prompts in full, without any omission. Through such documentation and reflection, you will contribute to a knowledge base of best practice and help others learn from your experiences.

Attribution. All ideas that are not originally one's own have a source and that source must be attributed. Please be aware that generative AI tends to invent sources. You have a two-fold obligation. (1) you need to document the process, and (2) you need to find and attribute the original source of the idea, identify the location within the source, and provide a working link to the location. If you quote the AI itself, label it as "synthesized communication" and reference it via APA7. Note that such a "synthesized communication" is not a valid source for facts, only for the conversation itself. <https://apastyle.apa.org/blog/how-to-cite-chatgpt>

Facticity. Besides inventing sources, generative AI may invent facts as well. Verification is your responsibility: submitting factually wrong material is an academic offense, and whether the source of the error is you or the AI makes no difference. You need to check the facts, the quotes, the arguments, the logic, and document what you did to validate your material.



To pass this course: AI generated submissions cannot achieve a passing grade. This is necessary to ensure you are competent to surpass generative AI in the future – whether in academia, research, the workplace, or other domains of society. If this cannot be achieved, if you are not able to maintain control of the rules, you are entering an unwinnable competition. To provide a baseline that is specific for the course, we will produce, analyze, and provide AI-generated sample solutions. Your task will be to surpass them.

AI Participants - In small group settings and/or individually, AI can be included as a participant, prompted by a student or the instructor. This helps students gain a perspective on how to surpass the AIs level of competence. Its contributions can be criticized without any social burden, and contending with it will catalyze community intelligence in a constructive us-versus-it competition in which there are no losers. But this is not restricted to criticism: sometimes the AIs contributions are remarkably good, for example, when asked for a list of options it sometimes includes items that we would have overlooked, or it adds outlook and perspectives.

Academic integrity is our foundation as a community of scholars and learners. It defines the values we personally uphold, and it expresses a shared understanding why we do so. This includes: a commitment to truth; a commitment to personal integrity; and a commitment to certain standards and shared values on which membership in this community is based. See [this page](#) for an example.

By submitting an assignment for evaluation:

- you assert that it accurately reflects the facts and to do so you need to have verified the facts, especially if they originate from generative AI resources;
- you assert that all your sources that go beyond *common knowledge* are suitably attributed. *Common knowledge* is what a knowledgeable reader can assess without requiring confirmation from a separate source;
- you assert that you have respected all specific requirements of your assigned work, in particular requirements for transparency and documentation of process, or have explained yourself where this was not possible.

If any of these assertions are not true, whether by intent or negligence, you have violated your commitment to truth, and possibly other aspects of academic integrity. This constitutes academic misconduct.





Takeaways

- Different universities will have different AI policies.
- Play with the tools; they are fun.
- Think outside the box. The box no longer has the same boundaries.
- Embrace AI. It isn't going anywhere.

Questions or Suggestions?

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