CONFERENCE PAPER

Reimagining Course Creation: The Adaptive Intelligent Design (AID) Model and Generative AI

Presented by Mike McKay and Dr. Michelle Meadows on February 20, 2024, at the Instructional Technology Council Conference, Horseshoe Las Vegas, Las Vegas, NV

Introduction

The integration of Artificial Intelligence (AI) into course design marks a significant evolution in educational methodologies, challenging traditional models with a more adaptive and efficient approach. The advent of AI tools has opened new pathways for enhancing course content, personalizing learning experiences, and streamlining the development process. This shift necessitates a reevaluation of roles within educational institutions, pushing towards a collaborative model where Subject Matter Experts (SMEs), Learning Designers, and Chairs leverage AI to optimize course quality and delivery (Bates, 2019). This paper, a summary overview of a presentation given at the Instructional Technology Council's 2024 conference in Las Vegas, addresses the potential of AI to transform educational design, ensuring that it complements human expertise and upholds academic integrity (Pedró, et al., 2019).

Background

While standard course design frameworks such as ADDIE, Dick and Carey, and SAM offer structured approaches with clear planning and objectives, their strict nature may hinder flexibility and innovation in course design. "Dismissed as rigid, out-dated, or just too slow, the ADDIE method is sometimes abandoned for approaches thought to be more agile" (Naji, 2021). This becomes particularly problematic when subject matter experts, often lacking a background in educational theories, are tasked with content creation. Such a scenario may curtail the development of engaging learning experiences, as it does not fully support the adaptation to

students' evolving needs or the incorporation of new educational advancements (Means et al., 2014).

AI presents new opportunities to transform the course design process while also enhancing learning experiences. By efficiently analyzing large amounts of data, AI can predict outcomes, personalize content, and support dynamic materials that engage students. This allows for more flexible, responsive, and individualized learning.

Effectively leveraging AI in course design demands collaboration. Subject Matter Experts (SME), Learning Designers (LD), Instructional Designers (ID), and academics must work closely to ensure courses balance program expectations, academic rigor, sound pedagogy, and technological innovation. To do this, blending AI tools with human expertise will allow institutions to create more adaptive and efficient learning environments. Overall, AI stands to complement traditional teaching methods if deployed purposefully. This fusion of data-driven and time-tested practices can optimize course quality and delivery.
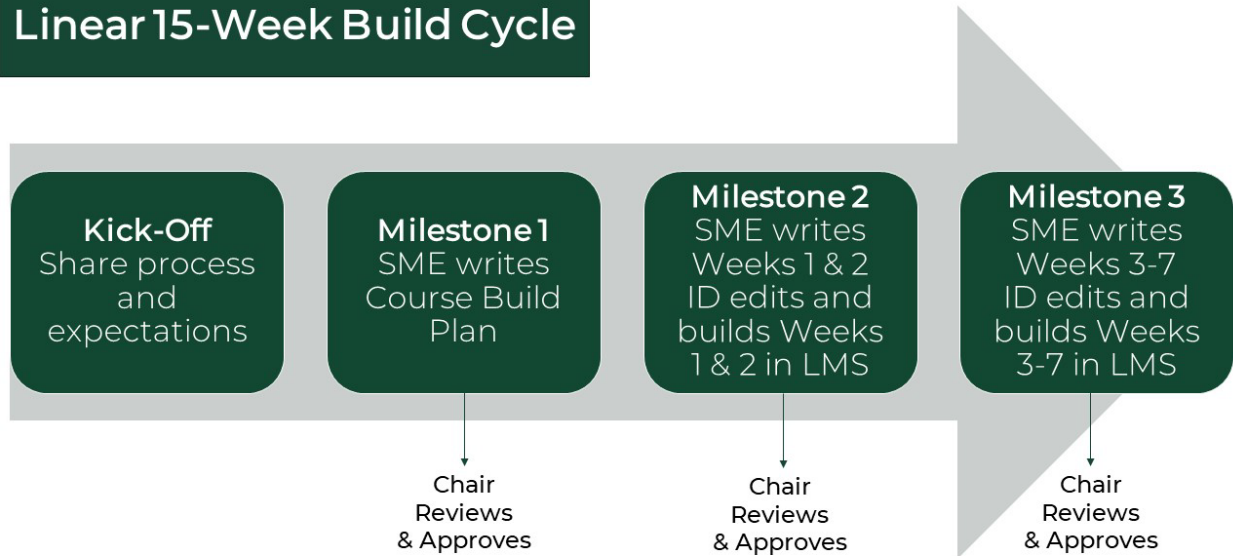
The Adaptive Intelligent Design (AID) Model

The Adaptive Intelligent Design (AID) Model represents a transformative approach to online course development, utilizing AI technologies to produce highly authentic, engaging learning experiences while enhancing efficiency and effectiveness. This model, co-developed by Mike McKay and Dr. Michelle Meadows, introduces a systematic, 10-step process that integrates Generative AI tools, like ChatGPT, to streamline the creation and updating of course content. AID emphasizes the importance of adaptability, leveraging AI to facilitate collaboration between SMEs and LDs, and to optimize the course design process from inception through final deployment. This approach not only accelerates development timelines may also improves the quality and relevance of educational materials, making it a pioneering framework in the intersection of AI and education.

Comparison to Traditional Course Development Models

The traditional course build plan at Tiffin University (as seen in Image 1) follows a linear, step-by-step approach that can be time-consuming and inflexible. It typically involves defining learning goals, designing curriculum, developing content, and implementing and evaluating the course. This process relies heavily on manual efforts and the expertise of the SME and instructional design team, with limited scope for creating authentic and engaging learning experiences or the integration of emerging technologies.
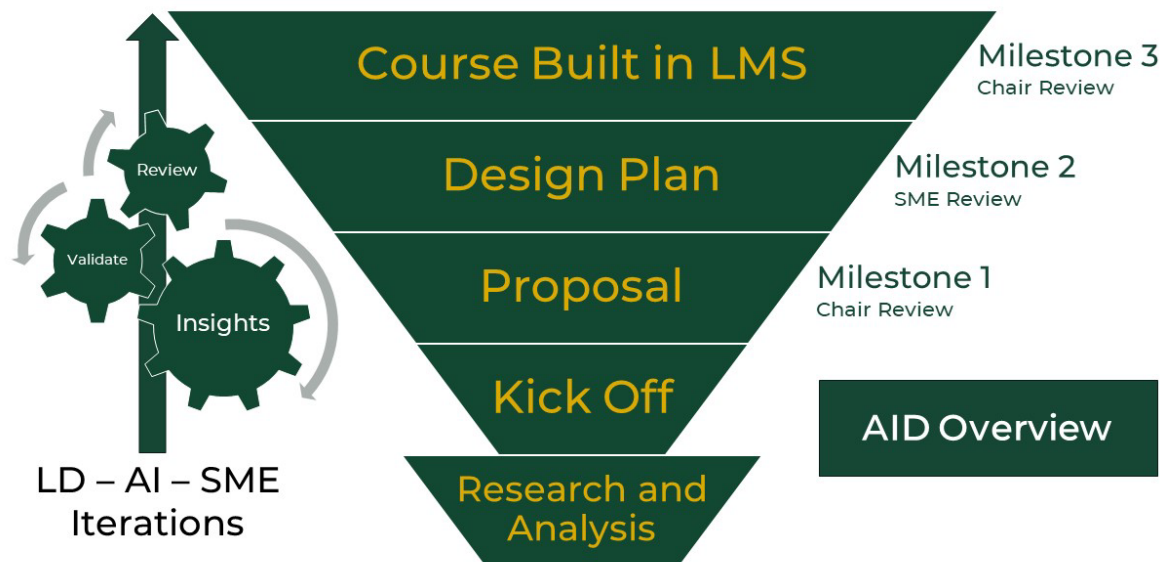
Linear 15-Week Build Cycle

Kick-Off Share process and expectations

Milestone 1 SME writes Course Build Plan

Milestone 2 SME writes Weeks 1 & 2 ID edits and builds Weeks 1 & 2 in LMS

Milestone 3 SME writes Weeks 3-7 ID edits and builds Weeks 3-7 in LMS

Chair Reviews & Approves

Chair Reviews & Approves

Chair Reviews & Approves

Mike McKay, Tiffin University, 2024 ITC Las Vegas

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Image 1

In contrast, the AID model incorporates AI tools from the outset, automating and enhancing tasks such as content generation, data analysis, and student feedback integration. This model is designed to be more flexible, allowing for continuous improvement and adaptation to student needs and industry trends. The AID model facilitates a more collaborative and efficient course development process, reducing timeframes and having the potential to improve the quality and relevance of educational materials.

Image 2

The 10-Step Method

The Adaptive Intelligent Design (AID) process is represented by a 10-step methodology, blending AI's strengths with instructional design principles. Here is an expanded look at each step as illustrated in Image 2:

1. **Pre-Kick-Off (KO) Notes**: The Learning Designer (LD) gathers learning objectives, course descriptions, topics, and notes from the Subject Matter Expert (SME) and Chair, laying the groundwork for the course design.
2. **Research and Analysis**: Based on the pre-KO notes, research, and analysis, the LD drafts a Course Design Outline, which serves as a preliminary framework for the course's structure and content.
3. **Kick Off**: This meeting involves the LD, SME, and Chair, where the Course Design Outline is presented and discussed to align on the course direction. The outline is refined to include specific resources and assignments.
4. **Course Design Proposal**: The LD develops a more detailed Course Design Proposal, incorporating feedback from the KO call. This proposal outlines the narratives, assignments, assets, and evaluations for the course.
5. **Course Design Plan**: Upon approval of the proposal, a comprehensive Course Design Plan is created, detailing all course components. The SME evaluates the Course Design Plan for accuracy, relevance, and credibility, providing feedback for refinement.
6. **Chair Evaluation**: The Chair reviews and approves the plan.
7. **LMS Build**: With the Course Design Plan finalized, the course is constructed within the Learning Management System (LMS), readying it for QA and deployment.

8. **Quality Assurance (QA)**: The course undergoes a thorough QA process to ensure it meets quality standards and addresses any identified issues.
9. **Deployment**: The course is officially launched and made available to learners.
10. **Evaluation and Improvements**: Post-deployment (Milestone 4), feedback from learners and instructors is collected, driving final course refinements and updates.

If at any time there is discussion or debate about the progress of the course, be it methodology, philosophies, or pedagogy, the design is revisited, thus making the process iterative and "adaptive."

This AID model combines the systematic approach of traditional frameworks like ADDIE with the iterative, AI-enhanced methodologies of models like SAM, ensuring a dynamic and responsive course development process. AI plays a crucial role in content authoring and continuous improvement, offering a significant advancement over traditional, SME-led approaches.

Shifting Roles and Perspectives

The Adaptive Intelligent Design (AID) process reflects a significant shift in the role of Subject Matter Experts (SMEs) in course development.

In the corporate environment, SMEs are commonly relied upon to be Master to the Apprentice. The company's Instructional Designer often prepares the content for their training, and the SME is expected to deliver the training. This is demonstrated in Dale Ludwig's book titled Effective SMEs: A Trainers's Guide for Helping Subject Matter Experts Facilitate Learning (Ludwig & Owen-Boger, 2017):

> "SME-led training is an especially challenging example of this tension because the SME did not create the plan. As a result, they may struggle to make sense of its flow, or have insights about training content that goes beyond the plan, which can make it difficult to be concise and focused. They also may struggle to manage the give-and-take of the learning conversation due to being so focused on content.
>
> What this means is that all the work instructional designers do leading up to training delivery should be done with the needs of both learners and the SME in mind. For learners, the design should make learning as easy, clear, and appropriate as possible. For the SME, the design should make delivery as comfortable, effective, and efficient as possible."

In the university environment, SMEs are commonly seen as the primary content authors as well as the instructor. We see this when adjuncts are hired to design a course and then given the opportunity to teach. However, with this in mind, we can begin to recognize that SMEs are transitioning to a more consultative position. In this new model, SMEs validate AI-generated content, ensuring its accuracy and relevance while also providing critical insights and expertise to enhance the course. This shift allows SMEs to focus on contributing specialized knowledge

and feedback rather than writing course content, leveraging AI to streamline content creation and enrich the educational material with their expertise. This evolution emphasizes the collaborative synergy between AI capabilities and human expertise, optimizing the course development process for quality and efficiency.

The Learning Designer's Perspective

From the Learning Design perspective, integrating AI into course development presents both opportunities and challenges. Pros include increased efficiency in content creation, allowing Learning Designers (LDs) to focus on pedagogical strategies and student engagement rather than content generation. AI also supports personalized learning experiences, adapting content to meet individual student needs. Cons involve the potential for over-reliance on AI, which may limit creativity and critical thinking in course design. Additionally, the transition requires LDs to acquire new skills in AI tool management, posing a learning curve and resource allocation challenges.

The Chair's Perspective

From the Chair's perspective, the integration of AI in course development signals a strategic shift towards more innovative and efficient educational practices. Pros include the potential for higher-quality courses that better align with current industry standards and learning outcomes, as well as more efficient use of departmental resources. Cons might include concerns over maintaining academic integrity and the authenticity of AI-generated content, as well as the potential need for significant faculty retraining to effectively utilize new AI tools and methodologies. This shift underscores the importance of balancing technological advancements with the core values of academic excellence.

The Subject Matter Expert's Perspective

From the perspective of Subject Matter Experts (SMEs), the adoption of AI in course development offers both benefits and drawbacks. Pros include the reduction in the time and effort traditionally required for content creation, allowing SMEs to concentrate on providing deeper insights and validating the accuracy of AI-generated material. It also enables them to focus on cutting-edge developments in their field. Cons might encompass concerns about the dilution of their expertise, as AI-generated content requires thorough review to ensure it meets academic standards. There's also the challenge of adapting to a consultative role, which may differ significantly from their previous hands-on approach to course development.

Addressing the Open Challenges of AI Adoption

The integration of AI in course development signals a paradigm shift in the roles of Learning Designers, Chairs, and Subject Matter Experts (SMEs), allowing for enhanced collaboration and efficiency. However, this transition is not without its challenges. Learning Designers face a

learning curve in mastering new AI tools, Chairs grapple with ensuring academic integrity, and SMEs adjust to a consultative role. Balancing AI's benefits against these concerns requires a commitment to ongoing training, dialogue, and policy development, aiming to complement human expertise with AI's capabilities, thus enriching the educational landscape.

Some questions to consider:
1. How can institutions ensure the ethical use of AI in course development, respecting privacy and data protection standards?
2. What are the long-term impacts on employment for Learning Designers and SMEs with the increasing reliance on AI?
3. How can we measure the effectiveness of AI-enhanced courses compared to traditional methods in terms of student outcomes?
4. What strategies can be implemented to foster acceptance and adaptability among faculty and staff towards AI tools?
5. How can AI be leveraged to address diverse learning needs and inclusivity in the course design process?

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