Project Title:

Making Learning Addictive with Social Media and AI: Optimizing Teaching Methods Using Social Media Algorithms and Artificial Intelligence

Project Objective or Aim:

This research aims to enhance our understanding of how social media platforms utilize algorithms to increase user engagement and how artificial intelligence (AI) can be leveraged to implement similar strategies in educational settings. By investigating the mechanisms behind these algorithms and their psychological impact, the study seeks to explore how such technologies can be adapted to improve, optimize, or transform traditional teaching methodologies. The goal is to develop more interactive approaches that foster critical thinking and accurately assess student learning and growth, thereby bridging the gap between current educational practices and the advanced engagement techniques employed by social media platforms.

Project Background and Significance:

The rapid evolution of the technology industry, particularly in AI, has significantly accelerated various processes, including learning. Social media platforms heavily rely on AI to analyze user preferences and deliver tailored content, thereby maintaining high levels of user engagement. TikTok, for instance, employs algorithms that swiftly adapt to individual user interests, contributing to its rapid growth and competitive edge in the social media landscape. This research is crucial as it seeks to create a more engaging education system capable of adapting to the diverse needs of smaller student groups. By gaining a deeper understanding of engagement-driven algorithms and AI, the study aims to revolutionize knowledge dissemination globally. AI can provide customized assignments promptly, offer detailed explanations for complex topics, and cater to various learning styles, thereby enhancing educational outcomes. Moreover, AI can develop personalized learning paths based on data from student submissions, performance, and feedback, similar to the content curation algorithms used by platforms like TikTok. This approach aims to make educational content more engaging by presenting a mix of preferred and less favored topics in a manner that maintains student interest and enthusiasm.

Research methods:

Literature Review: Conduct a comprehensive review of existing literature on AI applications in education, focusing on methods to enhance engagement and learning outcomes. This will provide a foundational understanding of current AI capabilities and their potential impact on educational practices.

Algorithm Analysis: Investigate the algorithms underpinning the success of social media platforms such as Instagram, YouTube, and TikTok. Analyze how these algorithms assess user preferences and optimize content delivery to maximize retention and engagement.

Educational Application Study: Examine existing educational applications that incorporate AI tools to deliver personalized learning experiences. Evaluate their effectiveness, implementation strategies, resource requirements, and limitations to identify best practices and areas for improvement.

Prototype Development: Utilize insights from the previous steps to design and develop a prototype educational tool that integrates AI and engagement-based algorithms. The prototype will address specific challenges faced by students and educators, demonstrating the practical application of these technologies in a learning environment.

Pilot Testing: Implement the prototype in a controlled educational setting, such as a classroom or online learning platform. Gather feedback from educators and students to assess the tool's effectiveness in enhancing engagement and learning outcomes.

Data Collection and Analysis: Collect quantitative and qualitative data during the pilot testing phase. Analyze this data to evaluate the impact of the AI-driven tool on academic performance and student engagement, identifying strengths and areas for further refinement.

Timeline:

- Week 1-2: Literature review and algorithm analysis.
- Week 3-4: Research current AI learning applications and being working on the prototype.
- Week 5-6: Complete the prototype and being testing it.
- Week 7-8: Collect data from the prototype and being analyzing this one. Compile findings.

Expected Outcome:

The research has the goal of providing an AI-driven educational tool or at least a clear understanding of one that can be created and implemented in our current education system. It also aims to give a better understanding of AI and social media algorithms. The point being that these two technologies can be harnessed and used in our education system improving engagement from students. By completing this research, a big contribution to the education system will be done by facilitating the process of understanding, visualization, and application of programs that use artificial intelligence and engagement-based algorithms. This will most likely influence how school curriculums like the ones used in UCF will be updated in the future, implementing more AI and algorithm based tools that can adapt to the needs of individual students suiting itself to their likes and accommodating or rephrasing their dislikes in a way that won't drive them away or deteriorate their ability to learn due to the lack of enthusiasm. With enhanced student engagement classes will be able to progress at a faster rate accommodating for times that requires the school to shut down, this also makes everyone be able to retain more information, and for teachers to be more enthusiastic about teaching.

Literature Review:

1. Brusilovsky, P., & Millán, E. (2007). "User Models for Adaptive Hypermedia and Adaptive Educational Systems." The Adaptive Web, 3-53.
2. Kaplan, A. M., & Haenlein, M. (2016). "Higher Education at the Crossroads of Disruption: The University of the 21st Century." Emerald Insight.
3. Wang, S., et al. (2023). "When Adaptive Learning is Effective Learning: Comparison of an Adaptive Learning System to Teacher-Led Instruction." Interactive Learning Environments.
4. Harrell, S. (2018). "Factors Affecting Technology Integration in the Classroom." Alabama State University and The University of Alabama.
5. Hao, K. (2019). "China has started a grand experiment in AI education. It could reshape how the world learns." MIT Technology Review.

Preliminary Work and Experience:

I have been tutoring for the past 4 years. Dealing with a diverse group of students. These students have had issues learning, while others have been gifter, or below average performance, ADHD issues, severe anxiety, and social challenges. With this experience in hand, it makes me a person qualified to judge an individuals needs or challenges against a learning topic or teaching system. Furthermore, I am a sophomore in the University of Central Florida studying computer science, which gurantees a more than sufficient level of knowledge about software.

IRB/IACUC:

This project involves human subjects for whole process of pilot testing which will be used in an educational setting and will require IRB approval.

Budget:

- Software Development tools: $500
- Data Analysis Software: $300
- Participant Incentives: $200
- Conference Presentation Fees: $500
- Total: $1,500