Project Title:

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

Project Objective or Aim:

This research aims to improve our understanding of how social media giants use algorithms to make content more addicting and how AI can help us implement these. Why is it that it works so well against our human brain, how does it work, and how can it be used to improve, optimize, or replace the traditional approach to teaching that many education systems are still using? These are the questions this research aims to answer. By implementing more interactive approaches that prepare students to appreciate critical thinking and better portray how well they have learned something and their growth, this research seeks to close the gap between our teaching methods, social media giants that utilize algorithms to keep users engaged to the points of severe addiction, and lack of AI implementations in education systems.

Project Background and Significance:

The technology industry evolves at an exponential rate with breakthroughs that only speed up the evolution even more. Artificial Intelligence is the latest one, which allows for processes that normally take longer to be shortened, including learning. Social media is an industry that heavily relies on this, using AI to comprehend a user's likes and dislikes and, from there, be able to assess which of those the user is willing to watch no matter how much they like it or dislike it. TikTok is a perfect example of this; the app uses an algorithm that changes to the person's liking quickly. This is why TikTok was able to catch up and, in some cases, beat the social media giants of our time. This research is important because it aims to do something that many want: a more engaging education system that can adapt to the needs of smaller groups of students. Through this research, a deeper understanding of engagement-producing algorithms and artificial intelligence will significantly improve how knowledge is taught to the world. Students who need more homework can have customized homework within the minute. Students who need slower and more detailed steps for a topic can have a customized guide within the minute. A teacher won’t be able to fit the learning style of many students, but with the use of AI and engagement-producing algorithms, their reach across learning styles will be greatly expanded, which will exponentially improve learning outcomes and expectations across the board. Artificial Intelligence can reliably pass any basic university class, which means that it can also be reliable to talk about any lower-level topic, summarizing, providing examples, correcting answers, personalized lessons, and performing many other tasks that only improve the performance of professors. To add to this, AI can create customized learning paths for individuals students based

on data collected from the students submissions, homework, performance, and opinions. This leads to algorithms that are like those used by social media apps like TikTok, to then organize and update the path as the student progresses. This is done with the goal to make the content more engaging for the student by showing their progress, giving them their more favorable content mixed with less liked topic.

Research methods:

1. Literature Review: Review documents going over how artificial intelligence works, mainly researching how it can help increase engagement and the learning methods being used. AI is able to compare and contrast characteristics about whatever topic is being given to it, especially now that AI is able to scatter the internet for content, allowing it to give quick summaries or general ideas about a learning method that wants to be used by a school able to find thousands of peer-reviewed research papers which speeds up the research in the education area for many people.
2. Algorithm Analysis: Learn more about the algorithms that are behind the success of social media apps like Instagram, YouTube, TikTok. These applications all have something in common; they can understand what each user likes and dislikes, and then pick out of those two groups the things that the user is most willing to watch. All having the common goal of achieving high retention.
3. Education Application Study: Research applications that use AI tools in order to deliver a learning experience. Are they good at teaching? How is it done? How long does it take? What are the resources needed to maintain an application like this? What can't it do? These are the questions that this research is going to answer. With these answers we can then take a look at what can be used to take our education system to the next level.
4. Prototype Development: By using the data collected in the previous steps then one can build a prototype that will be utilizing artificial intelligence implementations and algorithm based answer to show what these two technologies are capable of doing in a learning environment, with the focus on a specific problem that many students or professors face on the regular.
5. Pilot Testing: Putting into the action a polished version of the prototype in a learning environment or a learning app, from there use professionals to judge the effectiveness of technologies like these in such environment were there are an infinite amount of variables that can come into an specific scenario at once.
6. Data Collection and Analysis: During and after the pilot face, collect as much quantitively and qualitive data from the program and the students. Analyze this one and get to understand the impact it can have on academic performance.

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

Cited stuff:

https://blog.hootsuite.com/tiktok-algorithm/