Michael Wang

Eliminating the Current Education System with Machine Learning Software

Proposal:
An automated, personalized teacher that adapts, finding the best way for teaching a user.

Overview/Rationale:
Standard education systems are not the optimal way for students to learn. Traditional learning was developed in a time before current technology existed and newer methods of teaching, such as the 1-1 mobile learning initiative are merely using technology to make traditional learning more convenient. Many older teachers are actually uncomfortable using new technology (King 2014) and effort needs to be spent teaching classroom instructors to use new technology. Traditional classrooms have two main issues: they don't account for the different learning speeds and styles of each student. Outside of the classroom, technology is often used by students to reinforce concepts in their own preferred method (Shepherd and Vardiman 2014). With BigData and Machine Learning technologies, large data sets can be analyzed (Grimmer 2015). These tools can be used to develop a new standard education system, one that automatically adjusts to each student, using the most effective way to teach the required curriculum.

Research & Implementation:
The first step in research is analyzing why students prefer online tools for learning over the traditional classroom environment. A few benefits that come to mind are convenience, accessibility, and interaction. In order to develop high-level interactive software, instructors with Artificial Intelligence need to be developed. Convenience and accessibility will be handled with software-as-a-service (SaaS) cloud technology. The next step is create software that teaches various topics in each of the possible learning styles: any styles not yet accounted for can be added in the future. Additionally, research needs to be done on how to identify learning patterns. Machine learning will handle this aspect by having the software teach users using various methods, and quizzing them to determine which method was most successful. Both short-term and long-term knowledge retention will be considered in this analysis. Finally, the system needs to be appealing to users in order to be self-driven. Otherwise, there needs to be a method to force students to use the system since it is meant to replace public education.

Intellectual Merit:
This research will primary impact the field of psychology in academia. New information related to learning behaviors is likely to be discovered in the process of this research. An analysis of the effects of this program will provide statistical data such as how a person's preferred learning styles and subject aptitudes are related.

Broader Impact:
This new software is meant to replace the standard classroom environment on a global scale. Learning will be more accessible and affordable to everyone. Less government funding will be spent on teachers or constructing/maintaining buildings for K-12 education. Buildings with laboratories for hands-on will still be necessary unless a major breakthrough is made in virtual reality technology. Students on a global scale will learn from the same curriculum and it will be easy to gauge one's skills relative to their peers, unlike how employers currently tend to favor students from reputable schools.

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King, Michael D. 2014. "Crossing the digital divide: a successful 1**:**1 program meets the needs of those who are uncomfortable using technology in the classroom as well as those who are familiar with technology". *Principal Leadership*, 14(5): 62-65

Shepherd, Ian J. Vardiman, Phil. 2014. "mLearning – A Mobile Learning/Teaching Methodology." *Journal of Higher Education Theory & Practice,* 14(4): 70-95

Grimmer, Justin. 2015. "We Are All Social Scientists Now: How Big Data, Machine Learning, and Causal Inference work together." *PS: Political Science & Politics*, 48(1): 80-83