I AM: An Application to Harness the Power of Positive Affirmation

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ABSTRACT

Positive affirmation is a performance and mood-boosting practice that has great potential to help students but is rarely utilized. I AM. is a website and mobile solution to bring these benefits to students through a device that many carry wherever they go. Accomplishing this requires skills in web development environments such as Django. The overall design approach is simplicity—to help students without adding any significant burden. The anticipated outcome of this application is two-fold: first, reduced mental strain on students prior to examinations, as well as increased overall performance; and second, improved class mood by providing data from the students to professors who can adjust classes accordingly. This project can be significantly expanded to include a feature set that allows in-app student-teacher interaction rather than teachers only seeing student usage data.

1. INTRODUCTION

How can simple technology be used to improve performance and alleviate stress in the modern classroom? That is the core question and motivation behind this paper, a review of a hackathon project which was implemented in collaboration with students Marcus Mann and Claire Thilenius of the University of Virginia.

The practice of mindfulness is relatively novel to the Western world, at least in the sense that it is accepted within the popular culture and generally considered good practice. There is, however, a thought among many of its practitioners that mindfulness and technology are at odds with one another, as technology facilitates the monopolization of much of our time and focus in the modern age—an idea that Columbia University professor Tim Wu has referred to as the "commodification of our attention."

However, as much as technology makes it easier to engage with ads and mindlessness and attention-grabbing, it can also bring us closer to positive habits. Existing apps like Insight Timer, Calm and Headspace have already connected hundreds of millions to these beneficial ideas in a way that would not have been possible without technological intervention. The hope is to bring the benefits of self-affirmation to a technology which is nearly an extension of today's students: their smartphones.

2. RELATED WORKS

Two significant studies lay the foundation for the affirmation application. The first of these, Martens, et al (2005), examined self-affirmation through the lens of improving women's intellectual performance while under stereotype threat — a psychological phenomenon in which someone feels at risk of confirming a negative stereotype for a group they are in. The paper investigated two different situations in which women may experience this phenomenon. In the first of these, women performed worse on a difficult math test which was described to them as "diagnostic of math intelligence." However, women who self-affirmed after being told this performed comparably to both men and to the control women who were given the no-threat test without the description. In the second situation, women were given a spatial rotation task and directly told that women are stereotyped to be inferior at it. Again, the half of the women who affirmed had improved performance.

In the second study, Creswell, et al., (2013) investigated the effects of self-affirmation while problem-solving under stress. In this case, 80 undergraduate students who experience chronic stress were given 30 difficult problems under time constraint in front of an evaluator. The results showed that

self-affirmation improved the performance of underperforming, chronically-stressed individuals.

3. PROJECT DESIGN

The design for this project began with creating a list of requirements that outlined the basic functions that the application needs to perform:

1. Provide affirmations to students before examinations.
2. Collect data on students' mood and anticipated performance before and after tests.
3. Allow teachers to set up their classes and input examination times.
4. Anonymously report collected student data to instructors.
5. Maximize ease of use for students.

The next decision was how to implement the application in a user-friendly and developer-friendly manner such that the requirements could be fulfilled within the time constraints of the competition. The chosen solution to this was to use two web frameworks familiar to the developers: Django and Bootstrap, which are both taught in UVA's Advanced Software Development class.

The core of the application is an online portal that relies on the crucial assumption that teachers are willing to commit a small amount of time to set up their classes for an opportunity to improve student outcomes. Consequently, the first function that was implemented allows the user to add new classes which will be displayed on the teacher's homepage as shown in Figure 1. Once a class has been created, the teacher will be able to add new assignments, as shown in Figure 2, for which they would like to send affirmations and collect data. These assignments will appear in a list under the appropriate class on the homepage.

Next is the student side of the application. To fulfill the requirements, two things have to be sent to students before each examination: a survey and an opportunity for affirmation. To increase ease of use, these two were combined such that once the student fills out the survey, they are presented with the affirmation to take into the test. The first step in this process was to collect student phone numbers which was accomplished by using a Google login template with phone number collection built in. Next, was sending text messages to students at a specific time prior to their test or quiz. This is accomplished with Twilio, a service that provides an API to send SMS messages with python in Django. Each text contains a link to a survey page, as shown in Figure 3. The survey has three statements: "I feel confident," "I can do my best," "I have prepared well." For each, students may choose one of three options: expressing agreement, disagreement, or neutrality. The survey ends with a final question, asking what score the student expects to receive. After pressing "Submit," the page is redirected to an affirmation, as shown in Figure 4.

Following the examination, the students are sent a follow up survey with the same three statements and question phrased in past-tense (e.g., "I felt confident" and "What score do you think you got?") All of this data is then reported to the teacher through an analytics page that compares the before-test and after-test responses for each question as shown in Figure 5. Educators can access the analytics, as well as see the progress on which surveys have been sent out, next to the respective assignment on their homepage in Figure 1.
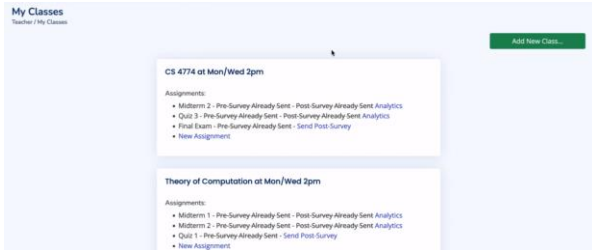
3.1 FIGURES

Figure 1: I AM. Teacher Homepage
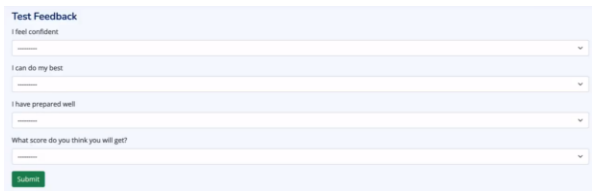

Figure 2: Add Assignment Page
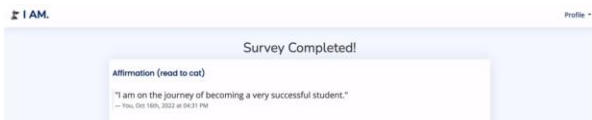

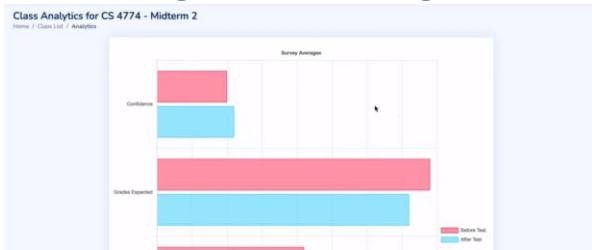Figure 3: Student Feedback Survey

Figure 4: Affirmation Page

Figure 5: Class Analytics Page

4. ANTICIPATED RESULTS

Given that this project has not been implemented in a classroom setting, the best understanding of its anticipated effects is the research upon which it was based. While it has no detrimental effects for anyone, the practice of self-affirmation implemented through this application has the most potent effect on psychologically disadvantaged individuals.

Creswell, et al., (2013) found that the performance of low-stress individuals was not substantially improved by self-affirmation. This is in contrast with high stress participants who performed notably worse in the control group, but performed as well as or better than low-stress people in either testing group when using affirmation. Similar conclusions were reached by Martens, et al (2005) who found that affirmations boost women under stereotype threat but did not significantly boost the performance of men who were not under threat. From these studies, it can be gathered that this application will function mostly to level the playing field for disadvantaged students and will, therefore, raise the overall scores and performance of the class on average.

5. CONCLUSION

I AM. is a web application built around improving student performance through self-affirmation and by tuning educators in to the emotional states of their classes. Be it stereotype threat, stress or any other issue preventing students from achieving their academic goals, I AM. will help each student perform their best on critical assessments. The app allows teachers to quickly set up their classes at the start of the semester and then automates the distribution of affirmations and short student surveys via text to maximize ease of use for the students and teachers. Finally, the surveys and the analytics generated from them will give students a way to self-reflect on their preparedness and performance constructively, and provides teachers with a way to see how their assessments compare with student expectations and affect student mental health.

6. FUTURE WORK

The biggest limitation on this project was the time constraint under which the original version had to be completed. Given this, there was a limited feature set that could be

implemented and there are significant possibilities for future expansion should the project be continued. Most notably, students interact with the app only through webpages sent via text. While this method is effective and simple for students, it has far less potential than an integrated mobile application would. A new mobile app could be designed to integrate with the existing Django site and significantly expand potential updates while providing students a more cohesive user experience.

7. ACKNOWLEDGMENTS

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