SAT Gamified Apps for Good Project Proposal

Executive Summary

In addition to often being a required aspect of a college application, standardized testing plays an important role of the high school experience, with the SAT (Scholastic Aptitude Test) and the ACT (American College Testing) being the two most taken tests in the United States. In 2024, around 1.94 million high schoolers took the SAT while 1.4 million took the ACT (Claybourn, 2024). However, this intense pressure to perform well on these tests has been linked to increased levels of stress and anxiety among students and educators (Stanford, 2023).

To address this issue, our team proposes an app for SAT studying that will integrate traditional practice questions into an immersive, interactive software to combine rigorous math coursework with gameplay. Unlike traditional studying, our app will include gamified aspects, such as dueling and fun animations, to make studying for the math section of the SAT more enjoyable.

The app will be developed using the game engine Godot and a publicly available dataset of official SAT math practice questions from the College Board. These questions will be displayed in the game to quiz the user with official practice questions and to collect personalized feedback. We hope that through this app, high school students will be more motivated to study for the SAT while preparing more effectively in a low stress way.

Introduction

Problem

While several colleges may remain test-optional, the Scholastic Aptitude Test (SAT) remains an important standardized test used for college admissions to assess academic success and student readiness for college-level rigor. In 2023, over 1.9 million students took the SAT ("Why Take the SAT?", 2025). Further, a successful SAT score can be indicative of strong skill, knowledge, and competency, and can provide added insight into a student's profile along with the student's GPA, which may be influenced by grade inflation or school-specific grading policies (Quad Education, 2024). Despite the relevance of the SAT, the test content is not based on school curriculum. This makes the SAT a test that, for almost all, requires several hours of practice to familiarize oneself with the question types and strategies. Additionally, studying for the SAT can be unmotivating, boring, and challenging, leading to students spending less time studying than they initially planned to. In a survey completed by 29 high school juniors and seniors at Mass Academy, 34.5% of students believed that in the 4-6 weeks leading up to their exam they *should* study for 5-6 hours (Figure 1), yet 31% of students stated that they *actually* spent just 0-1 hours studying (Figure 2). On average, the high school students had a 2.34-hour difference between how long they believe they should study and how long they actually studied. Most students cited busy schedules or laziness. One student

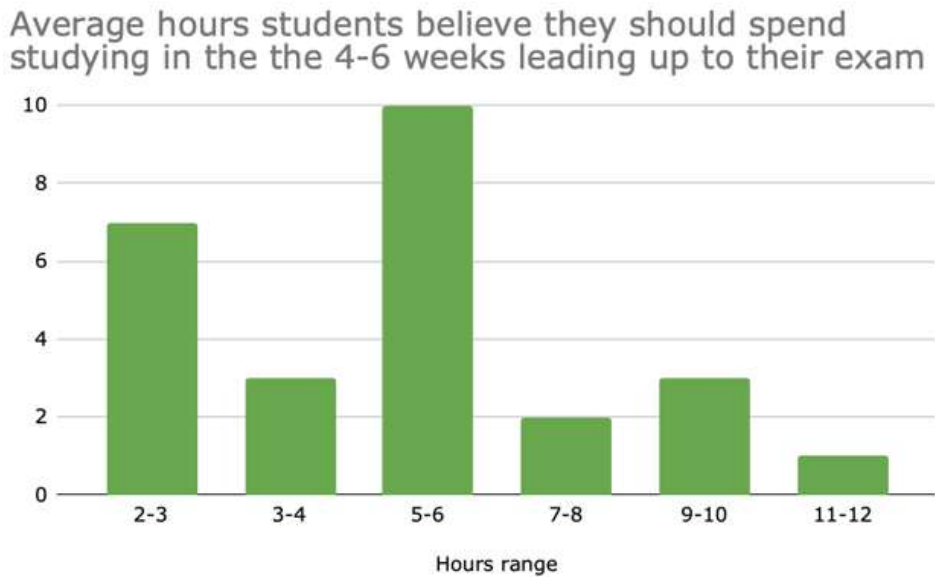stated their reasons were a "lack of motivation, lack of time, [and] nothing holding [them] accountable".

Figure 1: This graph depicts a distribution of how many hours Mass Academy students claimed they should have studied in the weeks leading up to their exams.
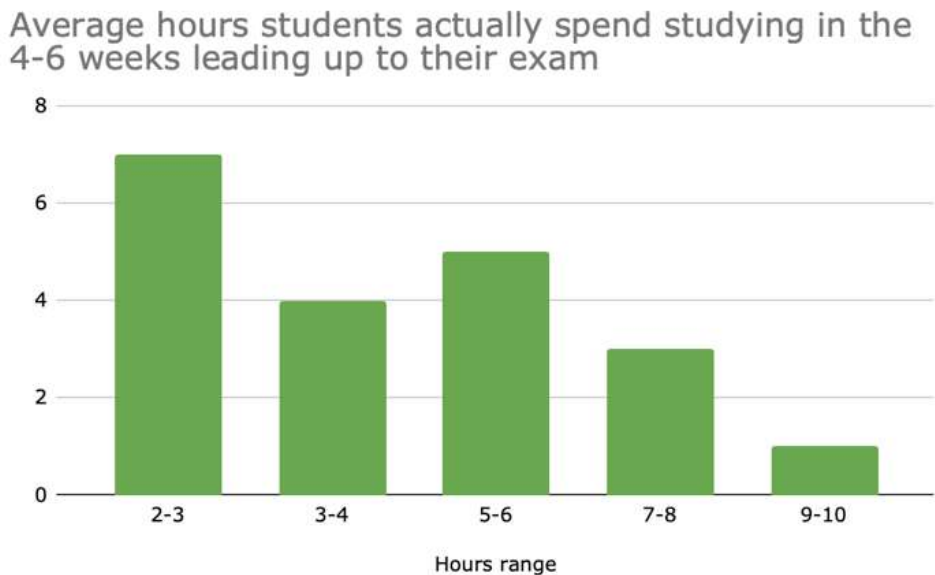

Figure 2: This graph depicts a distribution of how many hours Mass Academy students claimed they studied in the weeks leading up to their exams. The data is skewed right.

Audience

The target audience of this app is high school students studying for the SAT. The app specifically appeals to students that may have an upcoming SAT test in 1-12 months and are looking to increase their score in the math section, but find studying boring, unmotivating, and discouraging. The goals for the audience are to improve their SAT math score by 100+ points and have fun while doing so. The app aims to make studying for the SAT fun and motivating, further encouraging the user to diligently learn without even realizing it. In one interview with high school junior Varsha Alladi, she stated "I hate studying, especially for the SAT, like it's so boring, and I'd rather go on Instagram Reels". Despite Alladi's dislike of the studying process, she has high ambitions and is aiming to improve her SAT score. High schoolers like Alladi that would like to improve their SAT score on the Math section, but find traditional study methods boring, are the target audience for this app.

Competition

Market research on current gamified Math SAT prep apps has demonstrated the lack of software that balances gamification and stimulating content and prep work. Existing competitor apps solely focus on the English section of the SAT, provide non-SAT specified math content, or offer little to no gamification or engagement features. Schoolhouse's PlaySAT website and FreeRice offer both Math and English SAT content but solely offer users quizzes with no gamification or stored reward system. Further, Almost Fun and Sheppard Software offer further gamification, but the math content is elementary and focuses on building math fundamentals for k-12 education. While important, this content is very different from prep work required to prepare highschoolers for the SAT Math Section. More traditional SAT prep resources include Khan Academy, College Board practice tests, and Princeton Review textbooks, but none offer gamification or aim to solve the issue of student boredom while studying. Most existing competitors have a quiz-style format that avoids true gamification, such adding characters or backdrops. This reduces student engagement and attention retention, lowering the overall software's efficacy. Our app aims to improve on existing software by improving the efficacy, user engagement, and accessibility of SAT studying. The effectiveness of studying will be improved by using College Board questions, providing more appropriate, real, digital SAT-specific practice to users. The user engagement will be improved through increased gamification, such as adding colorful characters, the ability to switch backdrops, and having a point system (BananaBucks) that provides long-term rewards for consistent effort. The final primary improvement is the accessibility of prep work which we aim to a broaden by making it free to use, having understandable user interface, and getting frequent user feedback to identify areas that may be difficult to navigate for the user.

Specifications

Features

For the app's Minimum Viable Product (MVP), three core features have been identified: turn based combat on 1 level, math questions appear on attack, and damage and hit varies with player correctness and speed. Specifically, the MVP should provide users with SAT math questions then play the duel animation. The combat should be turn based and character performance should depend on the user's

answer correctness and speed. These three main features will provide the framework of the app to prepare for additional UI and engagement features.

The Math Section SAT practice questions will be sourced from the College Board's question database, a reputable source for SAT prep work (https://satsuitequestionbank.collegeboard.org/digital/search). The MVP does not include the user completing any background or initial diagnostic. The only user inputted information would be their answer choices to the questions to yield an appropriate response screen.

Feedback

Collecting customer feedback is imperative to ensuring the app is updated, accessible, and accomplishing its primary goal: making studying for the SAT Math section fun! Four weeks after downloading the app, users will be prompted to provide feedback. Additional feedback surveys will be pushed to users after longer consistent use and after major UI or internal software changes. Feedback surveys may include, but are not limited to, the following questions. Anonymity will be granted to all users to ensure as honest feedback as possible.

- Describe your satisfaction with this app.

- Would you recommend this app to a friend?

- How much has your SAT score changed since download? (-500, +0, +500, etc. → scaled responses)

- Describe your experience with navigating the app.

- Rate your engagement level while using this app.

- What could be done to improve this app in general?

- How could your engagement level be increased?

The user responses to these questions will determine the team's future steps and provide insight on if a change to the UI, debugging, or adding a new feature needs to occur. Abnormal feedback, such as major complaints, will be responded to immediately via email, if the user has opted to include it. However, all feedback will be valued, considered, and thoughtfully evaluated to determine if the change is necessary (if 5% or more of users have concurrence).

Potential future additions

For future additions, the team would like to consider the addition of an initial diagnostic test to gauge the user's starting point. This would aid in providing more appropriate content and would add personalization. Additionally, further gamification features could be added, such as BananaBucks, additional sprites and characters, and more backdrops or themes that could be unlocked with the BananaBucks. The content could also be broadened to provide general test-taking SAT tips and English SAT content in addition to Math. Finally, instead of written College Board explanations, video explanations could be added for further engagement and

understanding.

References

Claybourne, C. (2024, January 30). *ACT vs. SAT: How to Decide Which Test to Take.* US News & World Report; U.S. News & World Report. https://www.usnews.com/education/best-colleges/articles/act-vs-sat-how-to-decide-which-test-to-take

Quad Education. (2024, November 16). *Is the SAT Still Relevant? Here's What You Need to Know*. Quadeducationgroup.com; Quad Education. https://www.quadeducationgroup.com/blog/is-the-sat-still-relevant

Stanford, L. (2023, September). *Educators Feel Growing Pressure for Students to Perform Well on Standardized Tests*. Education Week. https://www.edweek.org/teaching-learning/educators-feel-growing-pressure-for-students-to-perform-well-on-standardized-tests/2023/09#:~:text=Nearly%2080%20percent%20of%20educators,perform%20well%20on%20standardized%20tests.

Why Take the SAT? - SAT Suite Benefits: For Students & Parents. (2025). Collegeboard.org. https://satsuite.collegeboard.org/sat-suite-benefits-students-parents/why-take-sat