

Ramp It Up:
Evaluation of a Gamified
College Financial Readiness App



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Executive Summary

Access to a college education is one of the key drivers of financial security; however, it can be especially difficult to attain for students from financially vulnerable households due to the high costs of college attendance. The availability of financial aid in the form of loans, grants, and scholarships can make college attendance a viable opportunity for these students, but understanding how to access such aid requires financial capability and specific knowledge that can be lacking. Commonwealth designed a college financial readiness solution to this challenge. The goal of “Ramp It Up,” a gamified app, is to give students both knowledge about available resources and the ability to take action to access and utilize those resources.

The goal of Ramp It Up is to give students both knowledge about available resources and the ability to take action

Ramp It Up (RIU) is an example of an innovation that began as an idea, was developed with consumer input, and piloted with its target user group. This report describes the pilot and the findings from the evaluation of that pilot. A separate report detailing the development of RIU and insights on how others can design and distribute gamified apps is available at www.buildcommonwealth.org. Insights from the evaluation include the impact of RIU on students’ confidence, perceived knowledge, actual knowledge, and action-taking. Among the findings highlighted in the report, RIU:

- *Was overwhelmingly endorsed by students as something they’d recommend to a friend;*
- *Significantly increased its players’ confidence in paying for college;*
- *Had a positive impact on students’ perceived self-knowledge about a number of topics related to college financial issues;*
- *Led to statistically significant improvements in knowledge of its players;*
- *Encouraged students to re-visit websites they were exposed to while playing RIU outside of the game; and*
- *Was designed to have, and did have, the same impact for all demographic groups*

The evaluation illustrates that a light intervention can get students to show up and – through a combination of educational content and game elements – positively change their confidence and knowledge, and ultimately lead them to take action.

This report starts with an introduction to the challenges of college financial readiness and a description of Ramp It Up. It then goes on to present the design of the pilot, its implementation, and results.



Introduction

The Challenge of College Affordability

Access to a college education is one of the key drivers of financial security. People with post-secondary degrees have better economic outcomes than their peers with high school degrees or less.ⁱ The gap in annual income between those having a college degree and those with just a high school diploma is increasing.ⁱⁱ However, there are many barriers to gaining access to a college education, with affordability being especially significant. Despite its high value, a college education is costly in the United States, meaning that family financial security—or even prosperity—can become a prerequisite.¹ College is key to achieving financial security, but getting there requires either the capital to pay for it outright or the financial capability to know how to cover the cost. Key to tackling the affordability barrier is college financial readiness: the knowledge and ability on the part of students to navigate the challenge of paying for higher education.

The challenge of college affordability is widely studied and reported. Between 2011 and 2016, the average cost of tuition rose by nine percent at public four-year institutions, by 11 percent at public two-year institutions, and by 12 percent at private nonprofit four-year institutions. The cost of attending college also includes numerous expenses beyond tuition. Students must often contend with housing, transportation, food, and childcare.ⁱⁱⁱ In addition to the average \$9,650 that in-state students were paying for tuition and fees at public four-year colleges in 2016, they were paying approximately \$10,500 more for room and board. For students at private nonprofit four-year colleges, room and board cost \$12,000 on top of a \$33,500 tuition bill.^{iv} A U.S. News and World Report study found about 19 percent of freshmen commuting or living off campus in the fall of 2014.^v While saving money on boarding, these commuter students were likely spending over \$1,000 per year on transportation.^{vi} As the cost of college has risen, so has the incidence of students lacking access to sufficient healthy food, with a number of food pantries opening on campuses to help address that problem.^{vii}

The key to tackling the affordability barrier is college financial readiness: the knowledge and ability on the part of students to navigate the challenge of paying for higher education

Although college can be expensive, it can become more affordable with access to the right information and skills. Pricing practices are part of the challenge. Most students shopping for colleges see a stated “sticker price” that may be much greater than the actual net cost. Most students receive financial assistance: the share of students receiving aid during the 2013-2014 academic year ranged from 78 to 89 percent depending on the type of institution.^{viii} Neither the likelihood that aid will offset a sizable portion of the sticker price (especially for students from families with financial need) nor the necessity of applying for aid is transparent to students during their college search. The students not knowing about financial aid or the process for getting it tend to be students from lower-socioeconomic backgrounds and/or first-generation college-goers.^{ix}

The phenomenon of summer melt – diminution of prospective students’ commitment to higher education over the summer between the end of high school and beginning of college – is likely driven in part by anxiety about cost. Students who have been academically successful and secured a spot in college, but who lack access to the right resources to understand cost, can be faced with shock and discouragement upon pivoting from high school academics to thinking about paying for college. In fact, about one in three students who complete high school do not enroll in college by the following October.^x While research has suggested multiple reasons, at least one explanation is not knowing how to pay for it.^{xi}

Magnitude of the Affordability Challenge for Financially Vulnerable Students

Access and affordability are particularly pernicious challenges for students from low-income families. These families are typically characterized by fewer assets and higher debt.^{xii} Furthermore, a disparity of access to college preparation resources in primary and secondary schools between socioeconomic groups means certain students are less equipped to navigate the complex process of applying to college and for financial aid. For example, 1.6 million students attend a school with a sworn law enforcement officer but without a school

ⁱ At the individual or family level, financial security generally refers to the ability to weather a financial emergency, through accumulated savings and assets and access to credit, as well as the peace of mind that comes with that (see, e.g. *The Pew Charitable Trusts*). While financial security is possible at various income levels, prosperity connotes wealth. Various investigations have revealed that college is more accessible to students from wealthier families. See, e.g., *The Atlantic* (3/23/2017): “Measuring College (Un)affordability” and *The New York Times* (1/18/2017) “Some Colleges Have More Students From the Top 1 Percent Than the Bottom 60. Find Yours.”



counselor.^{xiii} For many students, the support and knowledge of a college guidance counselor is essential for them to be able to navigate the college preparation process, including understanding options, requirements, and the financial aid process. In the absence of (or lack of access to) such a trained adult in that dedicated role, students must rely on familial and social networks for support and assistance. This type of social capital is less prevalent in underserved communities, where fewer people have gone to college and navigated the process.

Even students who attend high schools with generous college preparation resources may be at a disadvantage if they are the first in their families to attend college. Students from families with an older sibling or parent who attended college have the benefit of that person's experience. They may not remember, for example, exactly when tuition is due, but they know the need to fill out the Free Application for Student Aid (FAFSA) to access financial aid. Students who are the first in their families to attend college are often from poor households and communities,^{xiv} and have the burden of navigating both the application and financial aid processes without the close support of someone who has already been through it.

Even students who have overcome the odds of under-resourced schools and communities face another barrier in the form of financial literacy and financial capability, both of which are important skills for navigating the financial aid process. These skills are related to the resources offered by schools, as well as a family's experience and ability to provide guidance in these areas. Although there are a variety of resources available to students, especially via the U.S. Department of Education, students may not know about them or be able to understand the information provided and how to act on it. Distinctions such as grants/loans/aid/scholarships, need-based/merit-based/need-blind, and deferment/forbearance/default require financial literacy to understand what one is eligible for, what one can expect to receive, and the terms of repayment. The ability to weigh the cost of attendance at various colleges, the amount of financial aid one will receive, and the likely return on investment for one's chosen major are also elements of the financial capability needed to make a sound investment in a college education.

Creating a means for a student to access information about covering the cost of college and gain financial capability in order to act on that information could make a difference between going to college or not. Ramp It Up is an innovative approach developed by Commonwealth to address this challenging puzzle.

A Solution to the Challenge of Access & Affordability

Commonwealth designed a college financial readiness solution to give students both knowledge about available resources and the ability to take action to access and utilize those resources. In speaking with students in early research that led to this project, Commonwealth discovered that the stress from simply thinking about how to pay for college became, for many students, an insurmountable barrier to accessing any materials that might help them tackle that concern. The Ramp It Up (RIU) gamified app attempts to bridge this engagement gap by lowering student stress. RIU reaches students through a game experience alternating serious financial information with play, thereby improving knowledge and encouraging action-taking.

Gamification—the concept underlying RIU—provides a way to turn tasks into fun and engaging activities that lead to real-world action. The interactivity inherent in game playing permits an iterative and self-reinforcing approach to increase knowledge and build confidence. While being entertained, players encounter and work with new information in small chunks, gradually developing competency and self-confidence that is strengthened as they progress through the game. Commonwealth's objective was a game offering a compelling, interactive, and game-like experience to high school students -- with emphasis on financially vulnerable students -- to think about and improve college financial readiness. The gamified app allows students to navigate the financial issues related to higher education through a mobile and fun experience. The RIU pilot tested the gamified app approach to improving engagement with financial readiness materials in order to make decisions about college. The test focused on students at the point in their high school careers of applying to college to help them understand what affects college affordability, what they need to do to access financial aid, how loans and other financial instruments work, and how to make choices with good financial return.

A gamified app like RIU should be viewed as one of a series of interventions to improve the likelihood of attending college. The space is ripe for the design of additional interventions to engage other stakeholders such as teachers, mentors, friends, and parents. Understanding how RIU impacted youth will help Commonwealth and the field develop additional resources to help youth and their families achieve better outcomes.

This report describes RIU's mechanics and objectives, presents the theory of change and research questions, and summarizes the pilot test study design, methodology, and results.



The Gamified App: Ramp It Up

User Experience

RIU is a gamified app that students can use on phones, tablets, or through their computer browsers. It uses gaming features – such as lives, power-ups, badges, and embedded mechanics – to encourage engagement with learning objectives and resources. RIU is set in a universe of personified school cafeteria foods competing to become mascots by making long jumps and collecting tokens. Players move through four levels (experienced as stadiums), each of which tackles a specific set of challenges encountered by high school students considering college (see: Figure 1). The first stadium focuses on the availability of college financial aid, giving students insight into how they can afford to attend college. The second stadium focuses on specific aspects of financial aid, including the FAFSA and distinctions such as gift aid versus non-gift aid. The third stadium tackles loans, introducing students to the nature of loans and their limitations. The fourth stadium addresses the question of return on investment, helping students learn how to choose institutions that will allow them to manage their debt in the long-run.

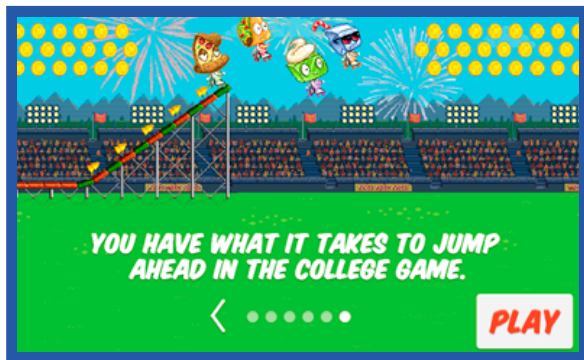


Figure 1. Image of App Stadium and Mascots



Figure 2. Load Screen with Reinforced Content

The gamified app embodies various modes of learning. When students are expected to learn a financial term, they are exposed to it in three ways: (1) written – the screen displays a clear written explanation of the term using low reading levels; (2) audio – a voiceover repeats each “lesson” in different words; and (3) visual – a drawing accompanies each concept. Immediately after learning a financial term or concept, students either practice their knowledge through a mini-game or are asked to apply it by finding information on a web-based resource. Content is further reinforced with load screens (see: Figure 2).

Target Users

RIU was designed as a point-in-time intervention for students in a specific time frame: the financial tools and opportunities that students typically encounter late in their junior year into the fall of their senior year. This is as students prepare to complete the Free Applications for Student Aid (FAFSA) prior to exposure to other college-preparation resources (such as meetings with guidance counselors). The pilot test aimed at isolating the gamified app’s effect without dilution by external exposure to college preparation resources. The broader target users were the low-income students who face greater barriers to college access and completion.

Objectives

RIU provides a uniquely engaging platform to get students to think about financing higher education. It does so in the following ways:

- ***The gamified app reduces student stress about a complicated process by mixing content that requires mental focus with content that serves as pure entertainment.***

By delivering educational content through the vehicle of a gamified app, Commonwealth addressed the emotional and psychological barriers faced by students exposed to stressful college financial choices. Throughout the app, students can voluntarily select activities that deliver instructional content, or they can play with the portions of the app that simply entertain. The instructional portions allow them to engage with foundational financial capability concepts and websites in a fun environment. Students earn achievements and advance through levels. These gamification techniques encourage continuous engagement and provide a sense of accomplishment

- ***The gamified app develops baseline financial capability.***

Throughout the gamified app, students are introduced to relevant terminology and financial capability resources. RIU engages users using language consistent with governmental and private sites. Resources and language are introduced through “mini-lessons” that cover content specific to that stage (stadium) of the gamified experience. For example, a mini-lesson in the form of a training for the mascot/player provides several facts about types of financial aid and then follows up with a brief quiz about that lesson; players are rewarded for completion of the lessons with elements that allow them to perform greater feats in the app.

- ***The gamified app introduces students to online college financial readiness resources and how to use them.***RIU

introduces students to resources that support its learning objectives. These resources are from top sources in the field and have been vetted by staff from the Federal Student Aid office of the U.S. Department of Education. These resources begin as passive learning experiences—such as video clips—and end as websites that require online action-taking. Students are given a mission before using a website to help them understand navigation. Students are encouraged throughout the gamified app to write down, share, and revisit websites. Students who successfully navigate a website are asked questions to ensure grasp of concepts as well as to encourage use.

Theory of Change and Research Questions

Theory of Change

The Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO) define “social determinants” of health as the conditions in the places where people live, learn, work, and play.^{xv} One way that these conditions impact health is through stress, which is more acute in conditions of poverty. Teenagers who live in or go to school amidst depressed economic conditions face the stress of their environments in addition to the stress of simply being a teen. A 2013 survey by the American Psychological Association found that school is the primary source of stress for teens, followed by the decision about what to do after high school.^{xvi} One way to become less stressed is to have fun, so the driving hypothesis behind RIU is that introducing college resources in a de-stressed environment will make students more likely to engage with, learn from, and use them.

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Variables Examined and Expected Outcomes

To test this hypothesis, Commonwealth examined differences before and after access to the gamified app. The primary variables examined all relate to the broad categories of confidence, basic college financial knowledge, engagement with resources, and action-taking with use of resources. In measuring changes in those variables, the hypothesis was that app use will result in positive changes in engagement with the concept of college financial readiness, attitudes toward the prospect of college attendance, student knowledge about college financial readiness resources, and student use of college financial readiness websites. In other words, does RIU...

- *...hold students' interest?*
- *...change student attitudes, including confidence in ability to access and use information, as well as perceived self-knowledge?*
- *...strengthen students' actual knowledge about college choice and finances?*
- *...motivate action-taking that could lead to successful college enrollment?*

Study Design

Key Testing Considerations

Commonwealth designed RIU to improve youth financial capability related to college readiness, especially for financially vulnerable students. The sample population focused primarily on schools serving low-income populations and on students who would be first-generation college-goers. A randomized control trial was not feasible, as students in the same school or even the same class would have been mixed between treatment and control. Given that students talk to one another, this could have skewed the results of the students who did not receive the intervention (for example, if they had spoken to peers who were using the app). It was necessary then to rely on a sample of convenience, designating schools as either treatment or control. The purpose of having these comparison control groups was twofold: to understand the impact of non-intervention exposure to similar content (would there be changes among students who did not play the app but were exposed to content in other ways); and to understand whether the intervention itself caused a greater impact when compared to similar students without it. The study took place over the 2015-2016 and 2016-2017 school years.

The study was a random assignment control experimental 2x2 factorial design for repeated measures. The two independent variables were 1) pre- and post- exposure to the intervention (RIU), and 2) type of group (control versus treatment). An additional covariate was type of “touch,” defined as either high (a school setting that has robust college-prep supports) or low (a school setting with minimal college-prep supports). Commonwealth believed it was important to investigate where this gamified app would be most effective for future deployment in terms of student access to college preparatory resources and whether embedding it into curriculum would yield better results. For example, in a high-touch context where the schools make a significant effort to provide their students with college preparatory resources, does the gamified app tip the scales or does it become just one more resource indistinguishable from other tools? Alternately, if a student is exposed to the gamified app in a low touch school that offers fewer college preparatory resources, would the gamified app prove crucial or insufficient?

Students in treatment groups were purposefully oversampled for two reasons: 1) to test the crucial element of engagement and see if students chose to try RIU rather than being forced to do so (affirming the key gamification principle of voluntary play); and 2) to ensure a robust sample size for analysis and allow for within-treatment comparison between students who were offered the gamified app and chose to play it (“treatment on the treated”) and those students who were offered the gamified app but did not play it (“intent to treat”).

Data Sources

The overall dataset consisted of two sources: surveys and app analytics. The dataset includes a baseline survey and one similar survey following the intervention.² Students in the control groups were given very similar surveys, omitting only questions specific to the intervention. The survey instruments varied in length, from 61 to 98 questions, with the variation arising from built-in skip logic and the difference between treatment and control instruments. Survey questions included demographics and a series of questions to address each research question; for example:

- **Access to college resources**

How interested are you in learning about how to pay for college?

- **Engagement and confidence**

How confident are you that you can afford college?

- **Perceived likelihood of college attendance**

How interested are you in attending college?

- **Familiarity with and use of college financial resources**

In addition to the sites you saw as part of Ramp It Up, have you visited any other websites that taught you about college financing?

Data from the gamified app's database (e.g., downloads, log-ins, etc.) supplemented the survey data. Data points about length of app play/log-in contributed to the analysis.

² The original study design called for two follow-up surveys: one shortly after introduction of the intervention and another about 6 weeks later. The intended purpose of the latter was to gather evidence regarding whether or not the impact of the intervention decayed over time. Unfortunately, testing conditions in schools ultimately did not allow for completion of the second follow-up survey. As such, results are inclusive of the pre-survey and one post-survey only.



Methodology

The evaluation approach aimed to align methodological rigor with the specific objectives of the RIU intervention. A mixed methods approach was employed to determine the impact of using the gamified app. Qualitative measures and analysis consisted of focus groups and interviews with high school students, and the evaluation employed quantitative methods to analyze both survey data and gameplay data.

Variables and Their Measurement

DEPENDENT VARIABLES

The core of the evaluation was pre-/post- difference scores for a series of survey questions measuring four dependent variables: knowledge, perceived self-knowledge, confidence, and action-taking. Each was a composite score computed by summing various survey items and is operationally defined below.

Knowledge

The core of the evaluation was pre-/post- difference scores for a series of survey questions measuring four dependent variables: knowledge, perceived self-knowledge, confidence, and action-taking. Each was a composite score computed by summing various survey items and is operationally defined below.

Self-Knowledge

The self-knowledge score summed twelve questions measuring respondents' feelings about their knowledge of aspects of college funding, scaled 1 to 10 with 1="nothing at all" and 10="a lot". Higher scores reflect a greater degree of self- knowledge about college funding. The Cronbach alpha for these was .94 (a high degree of reliability for these items). These items resulted in an interval level of measure for both the pre- and post-test scores and amenable to GLM for repeated measures analysis.

Confidence

The confidence score summed nine survey questions deemed valid for measuring a respondent's confidence in knowing how to apply and finance their college education, such as how to apply for a scholarship. Each question used a 4-point Likert scale with a '4' indicating "very likely," so the higher the score, the greater the confidence expressed. The Cronbach for these 9 items was .70 (close to an optimum value of .80) so was considered sufficiently reliable to measure the concept of "confidence." This yielded an interval level of measurement which could be entered into a GLM for repeated measures.

Action Taken

There were two action-taken dependent variables. One was computed for analysis of pre-/post- analysis of high touch versus low touch by control versus treatment groups. The second was computed for only the treatment group post-test analysis (these did not appear in the pretest), which enabled conducting a GLM for touch versus players (those that did and did not play the game).

Action Taken Control versus Treatment

Two items were in both the pre- and post- treatment and control groups to measure action taken. Both of these items were scaled true versus false. Originally, they were scored with the high value (2) being a false response - no action taken. To keep the consistency of a high score being a better score, responses for these items were reverse scored so that the higher value 2 was a true response - action taken. As such the range of this measure was only between 1 and 4. Perhaps because of this the Cronbach alpha was a relatively low .57.

Action taken post only Player versus Non-Player Control versus Treatment

There were four post-test only treatment items used to measure action taken so that those who played the game could be compared to those who did not play the game. These items were summed to create the action taken post only score used to compare players versus non-players compared to high touch versus low touch. The Cronbach alpha for this analysis was not advisable because each of the items were scaled differently. For example, one variable was measured with a 5-point Likert scale and another with true/false. Even with reverse scoring the alpha level was -.086. This indicated a relatively unreliable scale; however, it was felt that the measure was a sufficient interval level of measurement that could be used to provide at least an indication of differences in action taken for players versus non-players.



Variables and Their Measurement

INDEPENDENT VARIABLES

The salient independent variables used for the GLM repeated measures analyses were:

- **Pre-test score versus post-test score;**
- **High touch versus low touch school;**
- **Group.**

The main independent variable for this evaluation was treatment group versus control group. The treatment group was comprised of students who were offered the game after responding to the pre-survey and then presented with a post-survey. The control group was not provided with that option. Given these groups allowed for implementation of a quasi-experimental design. The pre-survey items for both groups were identical as well as the post-survey for the control group; the treatment group was presented with additional questions in the post-survey to measure their perception of the game after playing.

- **Players versus non-players.**

Since participation was voluntary, students who were in the treatment group could be “players” or “non-players”

Data Analyses Techniques

The independent variables and dependent variable measures were subjected to two sets of analyses. The first phase was individual analyses of high-priority survey items as defined by the evaluation objectives. The second phase analyses were designed to test the main effects for group by touch for each of the four dependent variables as well as player versus touch for the treatment only group. The analysis for each phase is described below.

PHASE 1: NON-PARAMETRIC ANALYSIS

The phase one analyses consisted of subjecting each high priority question to a non-parametric test of differences between an individual's pre-and post-test responses. Testing the effect of playing the game was key to the evaluation, so the survey data was parsed into two groups: those that actually used the gamified app (“players”) versus those who did not play the game (“non-players”). It was felt that analyzing these differences would provide a more accurate assessment of the app's influence. The statistical analysis used was the non-parametric Wilcoxon signed rank test for related conditions because of the nominal scale responses to each of these items.³ A schematic of this approach is displayed below.

	TREATMENT OVERALL	TREATMENT PLAYERS	TREATMENT NON-PLAYERS	CONTROL
Q_1 THRU Q_n	Sig. Δ PRE VS POST	Sig. Δ PRE VS POST	Sig. Δ PRE VS POST	Sig. Δ PRE VS POST

It will be noted that the above analyses were conducted for numerous items for each of the conditions (treatment overall, treatment players, treatment non-players and control) which resulted in over 200 separate signed rank tests. For each the Sig. Δ PRE VS POST was reported along with the effect size.

³ Field, A. *Discovering Statistics Using SPSS 3rd Ed.* Sage Publication. Thousand Oaks California. 2009. pp. 552 – 559



Variables and Their Measurement

PHASE 2: GENERAL LINEAR MODEL ANALYSIS

The general linear model (GLM) analysis in this study incorporated the composite scores for each of four dependent variables. This allows for comparison of the variable of touch and individual differences within groups in the same model, and it combines individual results for a variety of questions, which may result in certain individual-level question results being diluted.

There were two salient independent variables that may have affected individual differences (within subjects) pre- and post- for the four dependent variables defined above. These were touch (high vs. low) and group (treatment vs. control). Even though there were concerns regarding the comparability between control and treatment it was felt that including them in GLM analysis was appropriate to assess the main effect for this variable.

The dependent variables of interest were measured with an interval level of measure. This coupled with the need to include two independent variables allowed subjecting the data to a repeated measures GLM. In this analysis, each respondent becomes their own control. The advantage of this approach is that the total variability (between pre- and post-measures) can be parsed into 'between' participant variability (group differences) and 'within' participant variability (i.e., individual differences between pre- and post- measures). Another advantage of this approach is that the within subject variability can be separated into variability attributed to an independent variable, e.g. touch or group, and error not explained by either of the independent variables (error). The results are F ratios for pre-/post differences per individual for each of the independent variables and the interaction of those independent variables.⁴

There were three groups of GLM analyses with multiple runs per group:

GROUPS	INDEPENDENT VARIABLES		DEPENDENT VARIABLES			
			KNOWLEDGE	SELF - KNOWLEDGE	CONFIDENCE	ACTION
GROUP 1 CONTROL & TREATMENT	Touch	Group	✓	✓	✓	✓
GROUP 2 TREATMENT ONLY	Touch	Player	✓	✓	✓	✓
GROUP 3 DEMOGRAPHICS	Touch	Race	✓	✓	✓	✓
	Touch	Gender	✓	✓	✓	✓
	Touch	Free Lunch	✓	✓	✓	✓
	Touch	Parent College	✓	✓	✓	✓

As can be seen from the above, there were 24 separate GLM for repeated measures conducted. Each GLM analysis is indicated by a check mark ✓. For any given GLM ✓ the reader can determine the independent variables and dependent variables used for that analysis. For example, the group 1 analysis indicates that the control and treatment groups data were subjected to four GLMs (one for each of the dependent variables) with touch and group (treatment versus control) used as the independent variables. For the group 2 set of analyses only the treatment data was used. However, that data was parsed into touch (high versus low) and player (players versus non-players) as the dependent variable. Finally, the group 3 analyses were conducted for touch by each demographic category as the independent variable. This was necessary because they were categorical data and as such could not be used as covariates in any of the group 1 or group 2 GLMs.

⁴ Field, A. *Discovering Statistics Using SPSS 3rd Ed.* Sage Publication. Thousand Oaks California. 2009.



Implementation

Partner Recruitment

Relying on a sample of convenience, Commonwealth identified high schools with student bodies reflecting RUI's target population. Because the study design called for an over-sampling of students receiving the intervention, recruitment prioritized treatment schools. The other design constraint was geographic diversity. While the final sample is not nationally representative, it is comprised of students from across the country. Commonwealth secured the participation of schools in Pennsylvania, Arizona, and the mid-Atlantic with the help of partner organizations already connected to the schools. Finally, while the test was intended for students during a limited window in their academic career – specifically, the fall of senior year – a sample of convenience also meant that the researchers had to work with school schedules, which resulted in there being some students in a spring test.

Legal Considerations

Working with partners allowed Commonwealth to piggy-back onto existing relationships to reach the students; however, legal hurdles resulted in protracted periods of review and organizational buy-in during the recruitment period. Despite trusted relationships and agreements, Commonwealth found that obtaining legal approval for school-level participation often required multiple levels of consent within the school's district. Decision makers considered elements such as the time off-task (i.e., not directly prescribed by the curriculum) and the provision of incentives to classroom teachers. Privacy was also a top concern, especially given that most test subjects were under the age of majority.

Working with persons under 18 requires specialized approvals. Schools generally seek advance Institutional Review Board (IRB) approval (usually from a university or other large research organization) to ensure that no harm is done to any subject in the test. IRB consent often requires obtaining parental approval available in multiple languages. For federal contracts, the Office of Management and Budget (OMB) must grant a Paperwork Reduction Act approval noting that the study creates unique knowledge as well as being methodologically sound. This approval from OMB is not specific to working with youth; however, the timing of that process did not match well with school calendars, impacting when the pilot test was able to begin.

Testing Conditions

In addition to obtaining parental consent through a signed permission form, other requirements for participation included: access to computers connected to the internet for each of the surveys and either a smart phone with sufficient data space to download the app and broadband access, or a computer with a supporting browser installed. Although RIU is intended for use on a tablet or mobile phone, it was also web-enabled, so students without access to an appropriate mobile device were not excluded from participation (however, not all browsers could support it).

Part of the theory of the gamified app was that students would find it appealing and play voluntarily; however, in order to try and ensure a sufficient take-up rate of surveys for analysis, student participation was incentivized by the promise of pizza parties. This reward was tied to 80% class participation, putting healthy pressure on students to be involved. In addition, teachers – or at the discretion of the school administration, schools – were offered an incentive of a monetary stipend for their cooperation, time, and support of the study.

The study was designed to occur over about three months:

- Week 1: Hand out permission forms
- Week 2: **Survey 1**
- Week 3: **"Game Play" (treatment schools)**
- Week 4: **Survey 2**
- Weeks 5-10: *nothing*
- Week 11: **Survey 3**



In order to ensure fidelity to the study design, teachers and other facilitators of the study were required to receive a brief training that outlined the time required for the study as well as the manner in which the study was to be implemented. Given the large span of time, it was challenging for some schools to fit the study into the prescribed timeline due to other calendar constraints (holidays, breaks, and testing periods), instructional demands, and (for seniors) graduation. The surveys had to be given during class time and each took about 20 minutes to administer. Ultimately, the challenges of scheduling impacted the distribution of data across sources and led to an insufficient amount of data for Survey 3 to include in the analysis.

Challenges

The primary difference between the study design and the actual quantity of data obtained was the low number of observations for Survey 3. Neither the school that had the largest treatment group of students in the fall nor the corresponding control school was able to administer Survey 3. There was a similar drop-off in respondents to Survey 3 among all students in the spring test. This was due in part to the scheduling challenges as well as to the time lost in the recruitment phase due to legal hurdles. Other challenges of implementation included teacher buy-in, quality control of data, and access to technology.

The cumulative time to administer surveys and assign the gamified app as homework was estimated at 60 minutes. However, several administrative challenges extended the time required. Managing permission form distribution and receipt proved time-consuming as did matching student unique identifiers to the correct students. In order to maintain a firewall between the student subjects and the investigators (Commonwealth's team) and comply with the IRB requirements, participating students were asked to provide an email address to serve as their unique identifier, and students were permitted to use fake email addresses. Although a student was expected to use the chosen email address consistently throughout the study, many students would enter a different email, requiring teachers to spend time reconciling mismatches. Finally, the complications of using a high-tech innovation in a low-resourced setting became obvious as students began playing the gamified app. In one large school, the only internet browser available was Google Chrome – with which the gamified app is incompatible -- and many of the students either did not have a smart phone or did not have the space on their phone for an additional app.

Study Participants

The study design called for 500 students to participate, split between a spring and fall test and disproportionately favoring first-semester seniors. The final sample exceeded 500 students and reflects oversampling of treatment schools in the fall. Figure 3 outlines the exact sample sizes for analysis, arranged along the multiple variables.

Figure 3. Sample Size

	FALL	SPRING	TOTAL
<i>High Touch (HT)</i>	39	214	253
<i>Low Touch (LT)</i>	631	70	701
<i>Treatment (T)</i>	477	235	712
<i>Control (C)</i>	193	49	242
<i>HT, T</i>	18	184	202
<i>HT, C</i>	21	30	51
<i>LT, T</i>	459	51	510
<i>LT, C</i>	172	19	191
<i>TOTAL</i>			954

The majority of the sample consisted of first-semester 12th-graders; given constraints of working with schools, there were also some second-semester 12th-graders and first-semester 11th-graders.

The majority of students in the “high-touch” environment had access to robust college preparation support through their schools. Approximately 40 students in this group were participants in a student banking program, which, among other benefits, ensured students had access to a college coach. Another large portion of students in the “high touch” group attended schools in a charter school network that was able to offer extended support through smaller class sizes, a longer school day, an afterschool program, and a robust Children’s Savings Account program. In contrast, students attending schools in the “low-touch” environment had less access to college preparatory materials. These schools faced significant demands and fewer or differently-allocated resources in order to meet those demands.

The majority of students who participated in the study during the fall of 2016 were from Arizona, with others from schools in New York, New Jersey, and Maryland. The spring test included students from Delaware and Pennsylvania. Across all of these students, the participants were largely students of color, recipients of subsidized lunches, and attending schools with on average, 15% of students classified as having disabilities. The participating schools had the following demographics:^{xviii}

<i>AVERAGE</i>	<i>NY</i>	<i>MD</i>	<i>AZ</i>	<i>PA</i>	<i>DE</i>
<i>Total Enrollment</i>	491	2,242	932	444	845
<i>Total Teachers (FTE)</i>	33	149	64	37	61
<i>Total Counselors (FTE)</i>	1.5	7	2	2	2
<i>STUDENT RACIAL/ETHNIC MAKE-UP</i>					
<i>American Indian/Alaska Native</i>	0.0%	0.4%	2.0%	0.7%	0.1%
<i>Asian</i>	0.8%	4.7%	0.7%	0.3%	1.8%
<i>Black</i>	56.3%	43.5%	3.4%	75.0%	32.3%
<i>Hispanic</i>	41.7%	43.3%	84.6%	1.0%	12.2%
<i>Native Hawaiian/Other Pacific Islander</i>	0.3%	0.6%	0.1%	0.0%	0.0%
<i>Two or More Races</i>	0.0%	1.5%	0.1%	6.8%	1.0%
<i>White</i>	1.1%	3.9%	9.2%	16.2%	52.6%
<i>SPECIAL POPULATIONS</i>					
<i>Students with Disabilities (IDEA)</i>	18.2%	14.7%	14.4%	11.4%	14.7%
<i>Students with Limited English Proficiency (LEP)</i>	3.2%	16.0%	11.2%	0.0%	2.1%
<i>Free and Reduced-price Lunch (FRPL)</i>	83.2%	66.2%	72.8%	35.8%	33.1%

Limitations

Undertaking an evaluation in which the human subjects are high school students poses significant challenges. Furthermore, the scope of the objectives for Ramp It Up and the challenges of analysis mean that the findings are imperfect.

The original study design intended to yield a set of data consisting of three surveys – a pre-survey and two post-intervention surveys – as well as gamified app-play data and app analytics, for example how long did a student engage with the app. Logistically, that meant that participating schools had to make 15-20 minutes of class-time available for each of the surveys and students in treatment schools had to devote another 45 minutes outside of class to playing the gamified app. Ultimately, the constraints of the academic calendar, as well as the time “off-task” required for the study, meant that only two of the three surveys were completed for the vast majority of participants. In addition to the study design, the survey and gamified app themselves presented unique challenges.

With respect to the survey, it was a lengthy instrument; questions that came towards the end of it may have been attended to less closely by respondents than questions at the beginning, given the reality of survey fatigue. As such, the results of questions asked toward the end of the survey may have less integrity than those at the beginning. Furthermore, the impact of the survey itself – i.e., information conveyed in the survey that was new to students – may have affected performance on subsequent surveys.

The game experience itself, to get from beginning to end, took about 45 minutes. Classrooms of students were incentivized to use the gamified app with the promise of pizza parties for a certain level of participation. In order to be counted as a “participant,” all students had to do was to log into the app. Because of this, many students may have opted in for the incentive but not finished the full game. Thus, the “impact of playing the game” as described previously is based on any amount of play and does not distinguish between the impact of the “entire” game, versus a portion of it. Furthermore, players are self-selected group of students – we don’t know whether or not they would have shown up for other college interventions – and the same might be said for non-players.

Finally, because the research was executed by volunteers already affiliated with the schools, it was impossible to understand the unique environments of each testing setting, including resources to which students were exposed. Anecdotal data and data available through the federal Department of Education allowed researchers to designate a school as “high-touch” or “low-touch;” however that is an approximation. RIU was intended to be a just-in-time intervention, coming at the moment when students have likely thought about college but may not have been exposed to explicit training about applying for financial aid. Depending on the priorities of a school, district, or even teacher, the gamified app may or may not have been introduced at the intended moment.

Baseline Characteristics of Study Participants

As the previously described analysis was undertaken, it became clear that it would be instructive to understand the “baseline characteristics” of the students in the study – that is, both their demographic characteristics as well as their mental state, prior to the exposure to Ramp It Up. Much of this data was obtained with the first survey students were given, prior to their exposure to the gamified app. The demographic characteristics examined went beyond race and “special population” status, to include parental education level, gender, foreseen source of college funding, and GPA. The rationale for this was to include known drivers of differentiation in college attendance. The “mental state” of the students examined prior to RIU is represented by two of the primary dependent variables, or areas of evaluation built into the survey: student confidence and knowledge.

Demographics

Demographic analyses were conducted to compare similarities or differences between treatment and control for demographic variables. Results of that process revealed many significant differences. The most dramatic disparity was for gender. That is, females were over-represented in the control group. It was felt that weighting or adjusting one or the other groups should be done for only one or possibly two variables. To adjust for all of the demographic variables would further complicate the analysis. It was decided that even if this adjustment was made it would not dramatically affect results when comparing treatment to control. Although the control group differences for each item were parsed out and reported separately, ultimately comparing students in the control group to those in the treatment group was deemed inappropriate given the extent of differences between the groups (See Appendix E).

Mental State

Confidence

As an important area of evaluation, understanding students’ confidence prior to introduction of the intervention is instructive. Based on data from the pre-survey prior to exposure to RIU, students had a high level of interest in both going to college and applying for financial assistance. Specifically:

- **An overwhelming number of respondents in the treatment group indicated that they were very or somewhat interested in attending college prior to exposure to RIU.**
- **The vast majority of respondents expressed being somewhat or very likely to attend college before exposure to RIU.**
- **The clear majority of students surveyed expressed interest in learning how to pay for college prior to the intervention.**
- **Players and non-players alike indicated high likelihood of applying for financial aid and scholarships before exposure to RIU.**

PRE-SURVEY QUESTION	TOTAL TREATMENT	PLAYERS	NON-PLAYERS
<i>How interested are you in attending college?</i> [responses given for ‘very’ or ‘somewhat’ interested]	95.9%	97%	95.3%
<i>Overall, how likely are you to attend college?</i> [responses given for ‘very’ or ‘somewhat’ likely]	95.2%	96.3%	94.6%
<i>How likely are you to apply for scholarships to help you pay for college?</i> [responses for ‘very’ or ‘somewhat’ likely]	89.2%	91.1%	89%
<i>How likely are you to apply for financial aid?</i> [responses for ‘very’ or ‘somewhat’ likely]	89.3%	89.6%	89.1%
<i>How interested are you in learning about how to pay for college?</i> [responses for ‘very’ or ‘somewhat’ interested]	94.9%	N/A	N/A

NOTES: Though the total treatment group comprised 712 cases, the analysis was only computed for the 538 cases that answered the question in both the pre- and post-surveys.



Knowledge

Similar to confidence, in order to understand the impact of RIU on students' objective knowledge, it's necessary to understand where they were before exposure to the gamified app. Based on data from the pre-survey, students exhibited relatively high baseline knowledge about FAFSA and the availability of financial aid prior to exposure to RIU. In addition, by a large margin, students indicated having heard about the FAFSA from a teacher or school counselor. Specifically:

- ***Around three-quarters of respondents correctly answered a true/false question regarding the availability of FAFSA funds before their exposure to RIU.***
- ***The overwhelming number of respondents indicated that they were knowledgeable about the availability of financial aid for eligible college students, as well as the FAFSA.***

PRE-SURVEY QUESTION	TOTAL TREATMENT	PLAYERS	NON-PLAYERS
<i>TRUE or FALSE: FAFSA funds are available on a first come first served basis, so it is important to fill out the application early. [responses for the correct answer]*</i>	73.3%	80.7%	67.9%
<i>Did you know that there is financial aid available to eligible college students? [responses of YES]**</i>	77.6%	80.7%	75.7%
<i>Have you heard about the FAFSA? [responses of YES]**</i>	85.6%	96.3%	79.1%

NOTES: *Treatment n = 507 valid cases; treatment, non-players n = 285; treatment, players n = 322; **Treatment n = 539; treatment, non-players n = 294; treatment, players n = 245

HOW DID YOU HEAR ABOUT THE FAWSA? [MULTIPLE ANSWERS ACCEPTED]

TREATMENT/PLAYERS:

PRE-SURVEY				Notes	POST-SURVEY		
	Frequency	Percent	Missing		Frequency	Percent	Missing
Teacher	205	63.7%	117	n=322	182	56.5%	140
Counselor At School	224	69.6%	98		196	60.9%	127
Mentor Outside Of School	73	22.7%	249		63	19.6%	259
Brother Or Sister	70	21.7%	252		62	19.3%	260
Friend	82	25.5%	240		90	28%	232
Parent(s)/Guardian(s)	79	24.5%	243		68	21.1%	254
My Own Research	51	15.8%	271		58	18%	264
After-School Program	32	9.9%	290		22	6.8%	300
News Or On A Blog	18	5.6%	304		17	5.3%	305
Social Media	50	15.5%	272		41	12.7%	281
Ramp It Up	n/a	n/a	n/a		80	24.8%	242
Other/Ad	6	1.9%	316		12	3.7%	310

TREATMENT/NON-PLAYERS:

PRE-SURVEY					POST-SURVEY		
	Frequency	Percent	Missing		Frequency	Percent	Missing
Teacher	265	59.8%	178	n=443	181	40.9%	262
Counselor At School	275	62.1%	168		179	40.4%	264
Mentor Outside Of School	76	17.2%	367		44	9.9%	399
Brother Or Sister	73	16.5%	370		41	9.3%	402
Friend	99	22.3%	344		61	13.8%	382
Parent(s)/Guardian(s)	110	24.8%	333		68	15.3%	375
My Own Research	56	12.6%	387		45	10.2%	398
After-School Program	41	9.3%	402		15	3.4%	428
News Or On A Blog	16	3.6%	427		8	1.8%	435
Social Media	56	12.6%	387		29	6.5%	414
Ramp It Up	n/a	n/a	n/a		38	8.6%	405
Other/Ad	6	1.4%	437		7	1.6%	436



Effects of Intervention

After taking the pre-survey, students in the treatment group were introduced to Ramp It Up (RIU). Following the opportunity to use the gamified app, students were given a second survey, like the first, but with additional questions specific to the game. The results that follow illustrate the impact of RIU relative to the dependent variables of student confidence and knowledge, perceived knowledge, and action-taking. In lieu of a presentation of results based on a comparison of students in the treatment group and those in the control group – ill-advised due to the disparities in demographic characteristics as previously described – the primary focus of the results is on the differences between those in the treatment group who actually used the gamified app (“treated” aka “players”) and those in the treatment group who did not (“intent to treat” aka “non-players”). There may be some spill-over effect of exposure to RIU among the students who were offered the chance to play but did not – in fact, the results of playing may be diluted for this reason; however, the impact of the gamified app will ultimately be seen among those who used it. It was felt that analyzing these differences would provide the most accurate conclusion about RIU’s influence.

In addition to the original intention to compare treatment versus control, the study design also called for variation along the lines of touch and demographics, as previously described. Although those variables were included in the analysis, the results yielded few indications that they were drivers of differential impact. As such, the non-significant differences are not included here.

The following results show, first, student engagement with the gamified app – to illustrate how students in the treatment group interacted with and perceived RIU – followed by the areas in which student use of the gamified app effected changes in each of the areas of evaluation. The results are presented with summary statements within each area of evaluation, followed by detailed data tables.

Engagement and Satisfaction: Did RIU hold students’ interest?

In order to evaluate RIU to understand the answer to this question, the variable of engagement was defined. This variable is represented by game-play analytics that provide insight into the extent to which students used the gamified app as well as survey questions regarding their satisfaction with it. This analysis was only done at the level of students who played the game. Among the 712 students in the treatment group, 322 (45%) elected to play the game. References to “players” refer to this group; references to “non-players” refer to the subset of the treatment group that did not play.

Findings:

Students exhibited positive engagement with RIU and overwhelmingly endorsed it. There were no meaningful differences with respect to engagement with the game along demographic lines.

- Student sessions (number of times logging in to play) ranged from 1 to 21, with the mean number being 4 sessions.
 - The length of sessions ranged from 14 seconds to more than 125 minutes, with the mean amount of time being 28 minutes.
- More than half of students completed three of four stadiums.
 - RIU content was divided among four stadiums, each subsequent one which was accessed by completing the one prior.
 - Nearly half of students who played RIU made it through Stadium 3 and started Stadium 4.
 - High percentages of students who began each stadium within the game completed the corresponding stadium.
- Most students (78.2%) would recommend RIU to others.



Tables with Detail:

TOTAL NUMBER OF SESSIONS CATEGORIES				
	Frequency	Percent	Valid Percent	Cumulative Percent
1 Session	68	21.3%	21.7%	21.7%
2 Sessions	69	21.6%	22%	43.8%
3 Sessions	43	13.4%	13.7%	57.5%
4 Sessions	39	12.2%	12.5%	70%
5 Sessions	28	8.8%	8.9%	78.9%
6 Sessions	15	4.7%	4.8%	83.7%
7 Sessions	13	4.1%	4.2%	87.9%
8 Sessions	12	3.8%	3.8%	91.7%
9 Sessions	9	2.8%	2.9%	94.6%
10 Sessions or More	17	5.3%	5.4%	100%
Total	313	97.8	100%	
Missing	8	2.2		
Total	322	100		

NOTES: Mean: 4.07 sessions; Std. Dev.: 3.457

TOTAL TIME PLAYING CATEGORIES				
	Frequency	Percent	Valid Percent	Cumulative Percent
.24 minutes to .99 minutes	5	1.6%	1.6%	1.6%
1 minute to 4.99 minutes	41	12.8%	12.8%	14.4%
5 minutes to 9.99 minutes	33	10.3%	10.3%	24.7%
10 minutes to 14.99 minutes	40	12.5%	12.5%	37.2%
15 minutes to 29.99 minutes	82	25.6%	25.6%	62.8%
30 minutes to 59.99 minutes	84	26.3%	26.3%	89.1%
60 minutes to 89.99 minutes	28	8.8%	8.8%	97.8%
90 + minutes	7	2.2%	2.2%	100%
Missing	2			
Total	322	100%	100%	

NOTES: Mean: 28.11 minutes; Std. Dev.: 23.937

STADIUM-PLAY DROP-OFF								
	Started				Completed			
	Stadium 1	Stadium 2	Stadium 3	Stadium 4	Stadium 1	Stadium 2	Stadium 3	Stadium 4
Total	312	231	182	159	282	219	169	135
Total	97%	72%	57%	49%	88%	68%	52%	42%
Total	322							

NOTES: Discrepancy between 'Totals players' and 'Frequency' for Stadium 1 can be attributed to drop-off between logging into the game and beginning Stadium 1.

INDIVIDUAL STADIUM COMPLETION				
Stadium	Stadium 1	Stadium 2	Stadium 3	Stadium 4
Count Started	312	231	182	159
Count Finished	282	219	169	135
Percent	90.4%	94.8%	92.9%	84.9%

NOTES: Total players – 322.

INDIVIDUAL STADIUM COMPLETION				
	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	290	40.70	78.2	78.2
No	81	11.40	21.8	100
Total	371	52.1	100	
Missing	341	48		
Total	712	100		



Confidence: Did RIU change student attitudes?

In order to evaluate RIU to understand the answer to this question, the variable of confidence was defined. This variable is represented by survey questions that provide insight into students' development of important decision-making skills, which the gamified app was intended to build while reducing stress, as well as questions of student self-confidence. Examining results for the treatment group, as well as its subgroup – intent to treat ('non-players') vs. treatment on treated ('players') – we find the following for various questions.

Findings:

RIU significantly increased its players' confidence in paying for college.

- Both players and non-players initially did not feel confident about how they were going to pay for college.
- There were significant positive shifts for both players and non-players from pre- to post. The shift for the players was over 16% while the non-players shift was about 10%.

RIU significantly increased its players' confidence in finding tools to help pay for college.

- Before the intervention, about three quarters of students indicated being somewhat or very confident about finding tools to help them pay for college; after exposure to RIU, all students showed a significant positive shift.
- The greatest shift was for those who played the game.

Students who played the game significantly increased in their confidence to use tools to help pay for college.

- The greatest shift was for those who played the game. There was no significant change for students in the treatment group who did not play.

RIU increased its players confidence in their ability to use other websites about college and influenced the way they made decisions about college.

- Nearly 69 percent of students who played RIU felt that it increased their confidence in this way.

Asked whether they felt like they knew how to find the information they needed on websites introduced in RIU, nearly 88 percent of respondents in the treatment group indicated 'somewhat' or 'definitely.'

- Further, nearly 80 percent of respondents indicated it was likely they'd want to revisit some of the websites on their own time.

The majority of respondents said that they were likely to revisit the websites introduced in RIU on their own time.

- Nearly 78% rated their likelihood on the higher end of the scale (very likely and somewhat likely) and only 21.5% rated it on the lower end of the scale (somewhat unlikely and very unlikely).

After exposure to RIU, students who played exhibited a greater likelihood of taking into account colleges' graduation rates as an important cost factor when thinking about paying for college.

- Among players, 54% thought it important to keep in mind a college's graduation rate after playing RIU, compared to 50% before the intervention.

The impact of the game on students' confidence – as measured from before playing to after playing – did not vary by gender, race, parental college attendance and student qualification for free/reduced lunch.

- Neither variations in students' school context (high touch/low touch) nor demographics drive differences in students' confidence from before to after introduction of the game. The one exception to this was for students in the low-touch environment, where individual differences may explain improved outcomes in confidence.



Following use of the gamified app, the number of students in the treatment group that expressed interest in attending college decreased.

- Despite the drop, the effect size (ES) for these differences was very small ($ES = .10$). This indicates that although the difference was significant the magnitude of the difference suggests a weak influence of RIU to cause a shift from pre- to post. A more likely explanation is that the significance level was a product of sample size as opposed to any meaningful difference.
- Nonetheless, the number of students interested remained quite high overall.

Respondents' expressed likelihood of college attendance before exposure to RIU shifted downward significantly following game-play.

- Both before and after the intervention, more than 96% of players indicated likelihood of attending college. The significant shift downward occurred for the overall treatment group, but there was no significant change when parsing out the players and non-players. Similar to the previous finding, regarding interest in college, a likely explanation is that the significance level was a product of sample size and does not represent a meaningful difference.

RIU had an apparently negative impact regarding students' likelihood of taking into account various important cost factors when considering college.

- The survey was designed to elicit multiple responses to three distractors: colleges' graduation rates; the average salary of their students after graduation; and the average amount they disburse in loans.
- As can be seen from the data, there were slight variations from pre- to post for these groups with the exception of the group that did not play the game – for this group, there was a dramatic shift from pre- to post. It is uncertain why this shift was observed. Perhaps there was less interest in the non-players in even answering the survey from pre- to post. Another possibility may be related to the nature of the question as multi-response; respondents who did not play may have had less motivation to take the survey and may have, therefore, been less likely to examine all of the options and instead picked fewer responses, thus giving the appearance of a decrease in likelihood.
- In the treatment group of students, fewer respondents indicated being likely to take into account either the average salary of a college's students after graduation or the average amount the college disbursed in loans.
- Neither variations in students' school context (high touch/low touch) nor demographics drive differences in students' confidence from before to after introduction of the game. The one exception to this was for students in the low-touch environment, where individual differences may explain improved outcomes in confidence.

Tables with Detail:

SURVEY QUESTION	PRE-SURVEY			POST-SURVEY		
	TREATMENT	PLAYERS	NON-PLAYERS	TREATMENT	PLAYERS	NON-PLAYERS
How confident are you that you can afford college? [responses given for 'very' or 'somewhat' confident]	51.5%	39.8%	47%	58%*	55.9%*	57%*
How confident are you that you can find the right tools (informational websites, books, counselors, etc.) to help you make decisions related to paying for college? [responses for 'very' or 'somewhat' confident]	77%	74.70%	78.50%	84.3%*	86.9%*	82%*
How confident are you that you can use available tools (informational websites, books, counselors, etc.) to help you make decisions related to paying for college? [responses for 'very' or 'somewhat' confident]	82.8%	85.1%	81.4%	85.9%*	90.2%*	82.4%
How did playing Ramp It Up change your level of confidence about your ability to use other websites and resources about college financing? [responses of made 'much more' or 'somewhat more' confident]				68.8% †	n/a	n/a
How much did playing Ramp It Up influence the way you make decisions about college financing? [responses of 'very much' or 'somewhat']				68.7% ‡	n/a	n/a

NOTES: *=statistically significant at $p < .05$; treatment $n = 538$ valid cases; treatment, non-players $n = 293$; treatment, players $n = 245$; Answers to these questions were derived by running frequency distributions. Frequencies were run for these items as they only occurred in the second survey in the treatment group. † = Total valid $n = 369$; missing = 343; total treatment = 712; ‡ = Total valid $n = 371$; missing = 341; total treatment = 712



Did you feel like you knew how to find the information you needed on the websites? [responses of 'definitely' or 'somewhat']

	Frequency	Percent	Valid Percent	Cumulative Percent
<i>Very much</i>	124	17.4%	33.5%	33.5%
<i>Somewhat</i>	200	28.1%	54.1%	87.6%
<i>Not too much</i>	34	4.8%	9.2%	96.8%
<i>Not at all</i>	12	1.7%	3.2%	100%
Total	370	52%	100%	
<i>Missing</i>	342	48%		
Total	712	100%		

How likely is it that you will want to revisit some of the websites on your own time? [responses of 'very likely' or 'somewhat likely']

	Frequency	Percent	Valid Percent	Cumulative Percent
<i>Very much</i>	57	8.0%	23.9%	23.9%
<i>Somewhat</i>	130	18.3%	54.6%	78.5%
<i>Not too much</i>	33	4.6%	13.9%	92.4%
<i>Not at all</i>	18	2.5%	7.6%	100%
Total	238	33.4%	100%	
<i>Missing</i>	474	66.6%		
Total	712	100%		

Which of the following do you think are important things to keep in mind when making decisions about college choices and college financing? Select all that apply.

[Response option chosen: college's graduation rate]

PRE-SURVEY			POST-SURVEY		
TREATMENT	PLAYERS	NON-PLAYERS	TREATMENT	PLAYERS	NON-PLAYERS
52.9%	50%	55.1%	45%	54%*	38.40%

NOTES: *=statistically significant at $p < .05$; ; treatment $n = 538$ valid cases; treatment, non-players $n = 293$; treatment, players $n = 245$. The survey was designed to elicit multiple responses to three distractors: colleges' graduation rates; the average salary of their students after graduation; and the average amount they disburse in loans. Respondents could choose all three, only one, two or none for both pre- and post. Because of multiple response conducting paired samples or any other statistical test was deemed inappropriate. There were slight variations from pre- to post for these groups. In the case of graduation rate, students who played RIU were more likely to consider that an important cost factor.

How interested are you in attending college?

[responses given for 'very' or 'somewhat' interested]

POST-SURVEY		
TREATMENT	PLAYERS	NON-PLAYERS
93.9%* (↓)	95.5%* (↓)	92.6%* (↓)

NOTES: *=statistically significant at $p < .05$; treatment $n = 538$ valid cases; treatment, non-players $n = 293$; treatment, players $n = 245$; (↓) indicates a downward movement from the baseline data

Overall, how likely are you to attend college?

[responses given for 'very' or 'somewhat' likely]

POST-SURVEY		
TREATMENT	PLAYERS	NON-PLAYERS
93.5%* (↓)	96.3%	91.2%

NOTES: *=statistically significant at $p < .05$; treatment $n = 538$ valid cases; treatment, non-players $n = 293$; treatment, players $n = 245$; (↓) indicates a downward movement from the baseline data

WHICH OF THE FOLLOWING DO YOU THINK ARE IMPORTANT THINGS TO KEEP IN MIND WHEN MAKING DECISIONS ABOUT COLLEGE CHOICES AND COLLEGE FINANCING? SELECT ALL THAT APPLY.

	PRE-SURVEY			POST-SURVEY		
Response Option Chosen	Treatment	Players	Non-Players	Treatment	Players	Non-Players
<i>College's Graduation Rate</i>	52.9%	50%	55.1%	45%	52%	38.4%
<i>The Average Salary Of Their Students After Graduation</i>	59.3%	57.8%	64.1%	42.2%	53.1%	39.5%
<i>Average Amount College Disbursed In Loans</i>	68.1%	62.7%	72%	43.7%	60.3%	38.8%



Perceived Self-Knowledge:

Did RIU improve students' perception of their own knowledge?

In order to evaluate RIU to understand the answer to this question, the variable of perceived self-knowledge was defined. This variable is represented by a survey question that provides insight into students' perception of their own knowledge on a number of important topics related to college financing. Examining results for the treatment group, as well as its subgroup – intent to treat ('non-players') vs. treatment on treated ('players') – we find the following.

Findings:

RIU had a positive impact on students' perceived self-knowledge about a number of topics related to college financial issues.

- The change from prior to the intervention to after it was statistically significant for all respondents in the treatment group, but the impact was greatest for students who played the game.

The impact of the game on students' perceived knowledge – as measured from before playing to after playing -- did not vary by gender, race, parental college attendance and student qualification for free/reduced lunch.

- Neither variations in students' school context (high touch/low touch) nor demographics drive differences in students' perceived self-knowledge from before to after introduction of the game.

Tables with Detail:

SURVEY QUESTION	PRE-SURVEY			POST-SURVEY		
On a Scale of 1-10, how much do you know about...	TREATMENT	PLAYERS	NON-PLAYERS	TREATMENT	PLAYERS	NON-PLAYERS
...the FAFSA?	5.94	6.63	5.35	6.44*	7.09*	5.88*
... the different types of financial aid available?	5.26	5.69	4.9	5.98*	51.5%	5.51*
... tools that could help you choose the right school, major, or financing options?	5.56	5.73	5.42	6.04*	6.36*	5.78*
...where to find tools that could help you choose the right school, major, or financing options?	5.44	5.71	5.2	5.92*	6.27*	5.62*
... the different scholarships you are eligible for?	5.39	5.63	5.18	5.92*	6.31*	5.59*
...the different student loan types?	4.75	4.95	4.57	5.57*	5.83*	5.34*
...the average financial need that the schools you are interested in meet?	5.13	5.39	4.91	51.5%	5.97*	5.41*
...the graduation rate of the colleges you are interested in?	5.14	5.3	5	5.94*	6.3*	5.63*
... how much money you could make after you graduate with a degree in your chosen major?	5.68	5.73	5.63	6.09*	6.34*	5.88
...whether the job you want is in a growing industry?	5.77	5.75	5.79	6.18*	6.42*	5.97
...the net price at the college(s) you are interested in attending?	5.15	5.27	5.04	5.7*	5.91*	5.52*
...the average student debt at graduation at the college(s) you are interested in attending?	4.73	4.87	4.61	5.48*	5.68*	5.3*

NOTES: *=statistically significant at $p < .05$



Knowledge: Did RIU strengthen students' knowledge about college choice and finances?

In order to evaluate RIU to understand the answer to this question, the variable of knowledge was defined. This variable is represented by survey questions that provide insight into students' grasp of foundational information about college and the opportunities to finance it. Examining differences by treatment and its subgroups – intent to treat ('non-players') vs. treatment on treated ('players') – we find the following.

Findings:

The overall treatment group, and specifically players within that group, exhibited statistically significant improvements in knowledge after exposure to RIU, based on higher incidence of correct responses to questions related to financing a college education.

- The specific questions that contributed to an overall improvement in knowledge were around the differences between gift and non-gift aid and the limits of financial aid.
- Three other questions around the FAFSA, scholarships, and loan types yielded no significant difference.

Regardless of school environment (high-touch vs. low-touch), respondents' knowledge improved. Playing the game, specifically, increases respondents' knowledge, and those in the high touch schools increased to a greater level than those in the low touch schools.

- Students in high-touch environments may have been exposed to additional resources simultaneously or prior to the intervention, which may have heightened their ability to answer correctly.

The analysis reveals that the impact of the game on students' knowledge – as measured from before playing to after playing -- did not vary by gender, parental college attendance, and student qualification for free/reduced lunch.

- There was a significant difference between individual knowledge scores from before playing RIU to after when controlling for environment (high touch/low touch) and race; however, the analysis reveals a significant increase in knowledge at the individual level that is meaningful even when differences by race are accounted for. In other words, there was an improvement in knowledge regardless of race.

Asked a true/false question regarding the availability of FAFSA funds, there were no statistically significant changes from pre- to post-, except for the students in the treatment group who did not play – these students correctly answered the question at a higher rate following introduction of RIU.

- Even though this group did not play the game, exposure to it seems to have increased their awareness of the FAFSA application process. It is possible that students elected not to play because they anticipated gaining knowledge through other channels.
- the low-touch environment, where individual differences may explain improved outcomes in confidence.

Tables with Detail:

TRUE/FALSE about types of financial aid: gift vs. non-gift [maximum points: 4]

- Grants are a form of gift aid.
- Financial aid includes gift and non-gift options.
- Work-study is a form of gift-aid.
- Scholarships are a form of gift aid.

PRE-SURVEY			POST-SURVEY		
TREATMENT	PLAYERS	NON-PLAYERS	TREATMENT	PLAYERS	NON-PLAYERS
3.14	3.20	3.08	3.41*	3.45*	3.38*

NOTES: *=statistically significant at $p < .05$; numbers presented are means

TRUE/FALSE about the limits of financial aid [maximum points: 3]

- You have to repay 100% of your student loans.
- If I don't graduate, I won't have to repay my student loans.
- The majority of students that go to college receive a discount.

PRE-SURVEY			POST-SURVEY		
TREATMENT	PLAYERS	NON-PLAYERS	TREATMENT	PLAYERS	NON-PLAYERS
2.26	2.22	2.31	2.34*	2.41*	2.27

NOTES: *=statistically significant at $p < .05$; numbers presented are means



DID STUDENTS WHO PLAYED THE GAME IMPROVE KNOWLEDGE AND DID THAT VARY BY SCHOOL ENVIRONMENT?

	Environment		Mean Knowledge Composite Score		Std. Error
PLAYER	High Touch	Pre-Intervention	12.64		.447
		Post-Intervention	14.00		.438
	Low Touch	Pre-Intervention	13.09		.176
		Post-Intervention	13.73		.173
NON-PLAYER	High Touch	Pre-Intervention	12.69		.370
		Post-Intervention	13.25		.364
	Low Touch	Pre-Intervention	13.02		.208
		Post-Intervention	13.08		.204

	PRE KNOWLEDGE				POST KNOWLEDGE			Between Sig.	Within Sig.
	Race	N	Mean	Std. Deviation	N	Mean	Std. Deviation		
HIGH TOUCH	White	10	13.50	1.58	10	13.20	1.14	.443	.009
	Hispanic Latino	6	12.67	1.37	6	13.17	1.94		
	All Other	19	12.05	2.01	19	13.53	1.35		
LOW TOUCH	White	54	12.85	1.48	54	13.24	1.20		
	Hispanic Latino	100	13.06	1.39	100	13.48	1.64		
	All Other	18	13.28	1.13	18	13.35	2.04		

TRUE/FALSE about FAFSA [maximum is 4]

- Grants are a form of gift aid.
- The FAFSA tells you how much you are expected to pay for college.
- The FAFSA provides access to grants, loans, and work-study from the Federal Government.
- My EFC (Expected Family Contribution) is the amount my family will have to pay for college

TRUE/FALSE about loan types [maximum is 2]

- Students can borrow federal and private loans to pay for college.
- Federal loans cost less than private loans.

PRE-SURVEY			POST-SURVEY		
TREATMENT	PLAYERS	NON-PLAYERS	TREATMENT	PLAYERS	NON-PLAYERS
2.99	3.08	2.90	2.97	3.03	2.90

PRE-SURVEY			POST-SURVEY		
TREATMENT	PLAYERS	NON-PLAYERS	TREATMENT	PLAYERS	NON-PLAYERS
1.55	1.60	1.50	1.57	1.61	1.53

TRUE/FALSE about scholarships [maximum is 2]

- I can only qualify for scholarships if I play a sport.
- I will have to pay back any scholarships that I am awarded.

FAFSA funds are available on a first come first served basis, so it is important to fill out the application early. (TRUE/FALSE)
[responses of correct answers]

PRE-SURVEY			POST-SURVEY		
TREATMENT	PLAYERS	NON-PLAYERS	TREATMENT	PLAYERS	NON-PLAYERS
1.94	1.98	1.90	1.92	1.96	1.87

PRE-SURVEY			POST-SURVEY		
TREATMENT	PLAYERS	NON-PLAYERS	TREATMENT	PLAYERS	NON-PLAYERS
73.3%	80.7%	67.9%	77.7%	78.8%	76.8%*(↑)

NOTES: *=statistically significant at $p < .05$



Action-Taking:

Did RIU motivate action-taking that could lead to successful college enrollment?

In order to evaluate RIU to understand the answer to this question, the variable of action-taking was defined. This variable is represented by survey questions that provide insight into the extent to which students avail themselves of new resources related to college readiness. This analysis was only done at the level of students who played the game.

Findings:

Among the 322 students identified as “game players,” more than half visited 6 of the 10 websites introduced in the gamified app one time during game-play.

- Players were identified as those who, at a minimum, created a required account for log-in, which served as an indication of “trying” the game.

Asked after the intervention, the majority of respondents indicated that they had not visited any of the websites shown in RIU app before playing it.

- Among those websites students had visited prior, the most common ones were the FAFSA.gov site with the FAFSA application as well as the YouTube video about the FAFSA.

More than 42 percent of respondents re-visited websites they were exposed to while playing RIU outside of the game.

- The remainder of respondents indicated that they had not.

Many students indicated that they had visited other websites that teach about college financing beyond those they saw as part of RIU.

- This was true for over a third of respondents.

Comparing students who played verses students offered the game who did not play, the players showed significantly greater action-taking than those who did not play.

- A combined variable evaluating two items measuring if the respondents researched information about graduation rates from their college of choice, and if the respondents sought information about the salary of a given profession, revealed greater action taking among players; there was no statistically meaningful difference between high-touch and low-touch groups.

Tables with Detail:

Data from the game's back end reveals the following frequencies of visits among students by website:

Website	Frequency # Of Students W 1 Visit	Missing Frequency	Total Visiting The Site Any Number Of Times	Valid Percent Of Students Excluding Missing	Percent Of Total Players
FAFSA 411	210	87	235	89.4	65.2
Scholarship Snatch	200	105	217	92.2	62.1
FAFSA Freeway	187	129	193	96.9	58.1
Federal Field	172	144	178	96.6	53.4
Financial Aid Relay	166	148	174	95.4	51.6
Buzzer Beater	168	148	174	96.6	52.2
Debt Down-low	124	184	138	89.9	38.5
Salary Scorecard	126	189	133	94.7	39.1
Career Kick-off	119	193	129	92.2	37.0
Get Set, Go!	119	195	127	93.7	37.0



Had you visited any of the websites shown in the Ramp It Up app before?

		Frequency	Percent	Valid Percent
Valid	Yes	82	25.5%	34.3%
	No	126	39.1%	52.7%
	Not Sure	31	9.6%	13%
	Total	239	74.2%	100%
Missing	System	83	25.8%	
Total		322	100%	

Which ones?

Website	Frequency	Percent
<i>FAFSA.gov site with the FAFSA application</i>	89	24.6
<i>YouTube video about the FAFSA</i>	78	24.2
<i>Federal Student Aid site with information about financial aid and student loans</i>	68	21.1
<i>College</i>	49	15.2
<i>Peterson's Scholarship Search site with information about scholarships</i>	34	10.6
<i>College Scorecard site with information about graduation rates</i>	23	7.1
<i>Payscale site with information about salaries in different industries</i>	20	6.2
<i>Careerinfonet site with information on industry growth rates</i>	16	5
<i>None of the above</i>	5	1.6

NOTES: Out of 322 possible players responding; students who answered both 'yes' and 'not sure' had the opportunity to respond to this question.

When you played Ramp It Up, you visited several websites with information about college financing through the game. Have you re-visited any of those same websites when you were not playing the game?

		Frequency	Percent	Valid Percent
	Yes	157	22.05%	42.32%
	No	214	30.06%	62.76%
	Total	371	52.11%	
Missing	System	341	47.89%	
Total		712	100%	

In addition to the sites you saw as part of Ramp It Up, have you visited any other websites that taught you about college financing?

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	124	17.4%	34.3%	33.6%
No	180	25.3%	52.7%	82.4%
Not Sure	65	9.1%	13%	100%
Total	369			
Missing	343			
Total	712			



Action-taking among players compared to non-players.

Website	Touch	Mean
Score for "players"	High Touch	5.71
	Low Touch	5.35
Score for "non-players"	High Touch	4.75
	Low Touch	4.88

Notes: The range of possible scores for this was 2 (low) – 8 (high). Significance test of the "between-subjects effects" of player vs. non-player yield a significance value of .062. Even though the significance value did not reach the .05 level, it was felt that a probability of .06 was close enough to support the alternative hypothesis that playing the game lead to a greater propensity toward action. Accepting this hypothesis would only lead to a Type I error 6 times out of 100.

Conclusion

With the creation of Ramp It Up, Commonwealth wanted to create a gamified app that turned the usually stressful process of thinking about how to pay for college into an engaging experience. The pilot of RIU was designed to test this approach.

The students who played Ramp It Up demonstrated positive changes associated with confidence about affording college, finding the right tools for use in decision-making, and perceived self-knowledge about a number of topics related to college financial issues. While further research is needed, the results are a promising first step towards understanding the role that gamification and a gamified app could play in addressing college financial readiness, and other stressful financial topics.



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Appendix A: List of Dependent Variables in Composite Analysis

KNOWLEDGE items (True/False)

- Filling out the FAFSA application is free.
- The FAFSA tells you how much you are expected to pay for college.
- The FAFSA provides access to grants, loans, and work-study from the Federal Government.
- My EFC (Expected Family Contribution) is the amount my family will have to pay for college.
- FAFSA funds are available on a first come first served basis, so it is important to fill out the application early.
- Grants are a form of gift aid.
- Financial aid includes gift and non-gift options.
- Work-study is a form of gift-aid.
- Scholarships are a form of gift aid.
- I can only qualify for scholarships if I play a sport.
- I will have to pay back any scholarships that I am awarded.
- Students can borrow federal and private loans to pay for college.
- Federal loans cost less than private loans.
- You have to repay 100% of your student loans.
- If I don't graduate, I won't have to repay my student loans.
- The majority of students that go to college receive a discount.

PERCEIVED SELF-KNOWLEDGE Items

- On a scale of 1-10, how much do you know about the FAFSA
- On a scale of 1-10, how much do you know about the different types of financial aid available
- On a scale of 1-10, how much do you know about tools that could help you choose the right school, major, or financing options
- On a scale of 1-10, how much do you know about where to find tools that could help you choose the right school, major, or financing options
- On a scale of 1-10, how much do you know about the different scholarships you are eligible for
- On a scale of 1-10, how much do you know about student loan types
- On a scale of 1-10, how much do you know about the average financial need that the schools you are interested in meet
- On a scale of 1-10, how much do you know about the graduation rates of the college(s) you are interested in attending
- On a scale of 1-10, how much do you know about how much money you could make after you graduate with a degree in your chosen major
- On a scale of 1-10, how much do you know about whether the job you want is in a growing industry



- On a scale of 1-10, how much do you know about the net price at the college(s) you are interested in attending
- On a scale of 1-10, how much do you know about the average student debt at graduation at the college(s) you are interested in attending

CONFIDENCE Items

- How interested are you in attending college?
- How confident are you that you can afford college?
- How likely are you to apply for financial aid?
- How likely are you to fill out the FAFSA?
- How likely are you to apply for scholarships to help you pay for college?
- How confident are you that you can find the right tools (informational websites, books, counselors, etc.) to help you make decisions related to paying for college?
- How confident are you that you can use available tools (informational websites, books, counselors, etc.) to help you make decisions related to paying for college?

ACTION FOR CONTROL VERSUS TREATMENT Items

- I have looked up the graduation rates of the schools I am interested in.
- I have looked up the salary and industry growth rate for the jobs I am interested in.

ACTION -- POST ONLY -- Items

- POST_In addition to the sites you saw as part of Ramp It Up, have you visited any other websites that taught you about college financing?
- POST_With who have you shared the websites you visited through Ramp It Up?



Appendix B: Pre-Survey ‘Survey 1’ (Control and Treatment groups)

Thank you for taking our survey! We will start by asking you a few questions about yourself and your future plans. It is important for us to hear your honest opinion, so please don't be shy! No right or wrong answers here.

1. What is your email?
a) (open ended; used to track students through surveys and gameplay)
2. What school do you go to?
a) [options to be added]
3. What is the name of the teacher who is having you take this survey?
a) [options to be added]
4. How interested are you in learning about how to pay for college?
a) Very interested
b) Somewhat interested
c) Not too interested
d) Not at all interested
5. How interested are you in learning about how to pay for college through a mobile game?
a) Very interested
b) Somewhat interested
c) Not too interested
d) Not at all interested
6. How interested are you in **attending** college?
a) Very interested
b) Somewhat interested
c) Not too interested
d) Not at all interested
7. [If answer to q6 = a), b), or c)] Which of the following are you interested in?
a) Certificate program
b) Taking a few college classes
c) Completing a 2-year Associate's degree
d) Completing a 4-year Bachelor's degree
e) Other (please specify)
8. How likely are you to **apply** for college?
a) Very likely
b) Somewhat likely
c) Not too likely
d) Not at all likely
9. Overall, how likely are you to **attend** college?
a) Very likely
b) Somewhat likely
c) Not too likely
d) Not at all likely
10. How likely are you to apply for financial aid?
a) Very likely
b) Somewhat likely
c) Not too likely
d) Not at all likely
11. How likely are you to apply for scholarships to help you pay for college?
a) Very likely
b) Somewhat likely
c) Not too likely
d) Not at all likely
12. Which of the following do you think are important things to keep in mind when making decisions about college choices and college financing? Select all that apply.
a) College graduation rates
b) Starting salary after graduation
c) How much money I would have to take out in loans to pay for it



13. How confident are you that you can afford college?

- a) Very confident
- b) Somewhat confident
- c) Not too confident
- d) Not at all confident

14. How confident are you that you can **find** the right tools (informational websites, books, counselors, etc.) to help you make decisions related to paying for college?

- a) Very confident
- b) Somewhat confident
- c) Not too confident
- d) Not at all confident

15. How confident are you that you can **use** available tools (informational websites, books, counselors, etc.) to help you make decisions related to paying for college?

- a) Very confident
- b) Somewhat confident
- c) Not too confident
- d) Not at all confident

Now we will ask you a few questions about going to college and paying for it. Please try your best to answer each question. If you don't know the answer to some of them, give us your best guess!

16. Did you know that there is financial aid available to eligible college students?

- a) Yes
- b) No
- c) Not sure

17. Have you heard about the FAFSA?

- a) Yes
- b) No
- c) Not sure

18. [If answer to q 17 = a] How did you hear about the FAFSA?

- a) I asked/was told about it by a teacher
- b) I asked/was told about it by a counselor at school
- c) I asked/was told about it by a mentor outside of school
- d) I asked/was told about it by a brother or sister
- e) I asked/was told about it by a friend
- f) I asked/was told about it by my parent(s)/guardian(s)
- g) Through my own research
- h) Through an after-school program
- i) Through the news or on a blog
- j) Through social media
- k) Through an ad (please specify)
- l) Other. Please specify.

19. [If answer to q 17 = a] How likely are you to fill out the FAFSA?

- a) Very likely
- b) Somewhat likely
- c) Not too likely
- d) Not at all likely



20. On a scale of 1-10, how much do you know about each of the following (1 being “nothing at all” and 10 being “a lot”):

- The FAFSA
- The different types of financial aid available
- Tools that could help you choose the right school, major, or financing options
- Where to find tools that could help you choose the right school, major, or financing options
- The different scholarships you are eligible for
- Student loan types
- The average financial need that the schools you are interested in meet
- The graduation rates of the college(s) you are interested in attending
- How much money you could make after you graduate with a degree in your chosen major
- Whether the job you want is in a growing industry
- The net price at the college(s) you are interested in attending
- The average student debt at graduation at the college(s) you are interested in attending

Answer the following True/False questions to the best of your ability:

21. Filling out the FAFSA application is free.

- True
- False

22. The FAFSA tells you how much you are expected to pay for college.

- True
- False

23. The FAFSA provides access to grants, loans, and work-study from the Federal Government.

- True
- False

24. Grants are a form of gift aid.

- True
- False

25. Financial aid includes gift and non-gift options.

- True
- False

26. Work-study is a form of gift-aid.

- True
- False

27. Scholarships are a form of gift aid.

- True
- False

28. I can only qualify for scholarships if I play a sport.

- True
- False

29. I will have to pay back any scholarships that I am awarded.

- True
- False

30. Students can borrow federal and private loans to pay for college.

- True
- False

31. Federal loans cost less than private loans

- True
- False

32. You have to repay 100% of your student loans.

- True
- False

33. If I don't graduate, I won't have to repay my student loans.

- True
- False

34. The majority of students that go to college receive a discount.

- True
- False

35. I have looked up the graduation rates of the schools I am interested in.

- True
- False

36. I have looked up the salary and industry growth rate for the jobs I am interested in.

- True
- False

37. FAFSA funds are available on a first come first served basis, so it is important to fill out the application early.

- True
- False

38. My EFC (Expected Family Contribution) is the amount my family will have to pay for college.

- True
- False



Now we will ask you a few questions about any college financing resources you may have seen before.

39. Have you ever tried to find information online about paying for college?
- a) Yes
 - b) No
 - c) I don't know
40. If you were using Google or another search site to try to find websites with information on how to pay for college, what would you type into the search bar?
- [open ended]
41. What websites or other types of resources have you visited (if any) to find information about how to pay for college?
- [open ended]
42. How did you find these websites/resources?
- a) I asked/was told about it by a teacher
 - b) I asked/was told about it by a counselor at school
 - c) I asked/was told about it by a mentor outside of school
 - d) I asked/was told about it by a brother or sister
 - e) I asked/was told about it by a friend
 - f) I asked/was told about it by my parent(s)/guardian(s)
 - g) Through my own research
 - h) Through an after-school program
 - i) Through the news or on a blog
 - j) Through social media
 - k) Through an ad (please specify)
 - l) Other. Please specify.

Next (you're almost there!) we will ask you some more questions about yourself. Please remember that we really appreciate your honest answers!

43. Which of the following devices do you have access to at home? Check all that apply.
- a) Smart phone
 - b) Tablet
 - c) Computer
 - d) None of the above
44. Which of the following devices do you have access to at school? Check all that apply.
- a) Smart phone
 - b) Tablet
 - c) Computer
 - d) None of the above
45. What race/ethnicity do you identify with? Select one or more.
- a) **American Indian or Alaska Native** - A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
 - b) **Asian** - A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
 - c) **Black or African American** - A person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American."
 - d) **Hispanic or Latino** - A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term, "Spanish origin," can be used in addition to "Hispanic or Latino."
 - e) **Native Hawaiian or Pacific Islander** - A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
 - f) **White** - A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.
 - g) **Prefer not to answer**



46. What is your gender?
- a) Female
 - b) Male
 - c) Self-identify
 - d) Prefer not to answer
47. What is your GPA?
- [Open-ended, Scale of 1-4]
48. How many Advanced Placement or International Baccalaureate classes have you taken?
- a) 0
 - b) 1
 - c) 2
 - d) 3-6
 - e) 7-10
 - f) More than 10
 - g) I don't know
 - h) My school does not offer these classes
49. Do you participate in any after school programs? Check all that apply.
- a) Tutoring program
 - b) Mentoring program
 - c) College preparation program
 - d) After school job
 - e) Arts (includes fine arts, music, performance, etc.)
 - f) Sports
 - g) School clubs
 - h) Honor society
 - i) Student government
 - j) SAT/ACT prep course
 - k) None
 - l) Other (please specify)
50. Do you qualify for free or reduced lunch?
- a) Yes: free
 - b) Yes: reduced
 - c) No
 - d) Prefer not to answer
 - e) I don't know
51. Do you have any older brothers or sisters who have attended college?
- a) Yes
 - b) No
52. Do you have money set aside for college in your own savings or investment account?
- a) Yes
 - b) No
 - c) I don't know
53. Do your parents have money set aside for your college costs?
- a) Yes
 - b) No
 - c) I don't know
54. Did one or both of your parents/guardians attend college?
- a) Yes
 - b) No
 - c) I don't know



55. How often do you talk to your parents about college?

- a) Very often
- b) Somewhat often
- c) Not too often
- d) Never

56. How often do you talk to your friends about college?

- a) Very often
- b) Somewhat often
- c) Not too often
- d) Never

57. If you plan to go to college, who do you expect will be paying your tuition?

- a) My parent(s)/guardian(s)
- b) Me
- c) Both me and my parent(s)/guardian(s)
- d) Someone else (please specify)
- e) My family and I have not talked about it
- f) I don't plan to go to college

58. Indicate which of the following people or sources have given you tools or information about going to and paying for college (check all that apply)

- a) My parents
- b) My friends
- c) Other family members
- d) My school
- e) After-school programs
- f) Found resources on my own
- g) None of the above
- h) Other



Appendix C: Post-Survey 1 ‘Survey 2’ (Treatment Group)

Thank you for taking our survey! We will start by asking you a few questions about the game Ramp It Up. It is important for us to hear your honest opinion, so please don't be shy! No right or wrong answers here.

1. What is your email?
 - a) (open ended; used to track students through surveys and gameplay)
2. What school do you go to?
 - a) [options to be added]
3. What is the name of the teacher who is having you take this survey?
 - a) [options to be added]
4. Have you played Ramp It Up? [if answer = b, skip to question 24]
 - a) Yes
 - b) No
5. Where did you play Ramp It Up? (Check all that apply)
 - a) At home
 - b) At school
 - c) During an after school program
 - d) At work
 - e) On the bus or train
 - f) Other (please specify)
 - g) I didn't play
6. What kind of device did you use to play the game? (Check all that apply)
 - a) Smart phone
 - b) Tablet
 - c) Computer
 - d) Other (Please specify)
7. Would you recommend this game to others?
 - a) Yes
 - b) No
8. Who have you recommended this game to?
 - a) No one
 - b) Friends
 - c) Parents
 - d) Brothers or sisters
 - e) Other (please specify)
9. How would you rate Ramp It Up on the app store? (1 star: worst rating, 5 stars: best rating)
 - a) 1 star
 - b) 2 stars
 - c) 3 stars
 - d) 4 stars
 - e) 5 stars
10. Which stadium did you get to?
 - a) Stadium 1: Taco
 - b) Stadium 2: Pizza
 - c) Stadium 3: Gelatin
 - d) Stadium 4: Milk



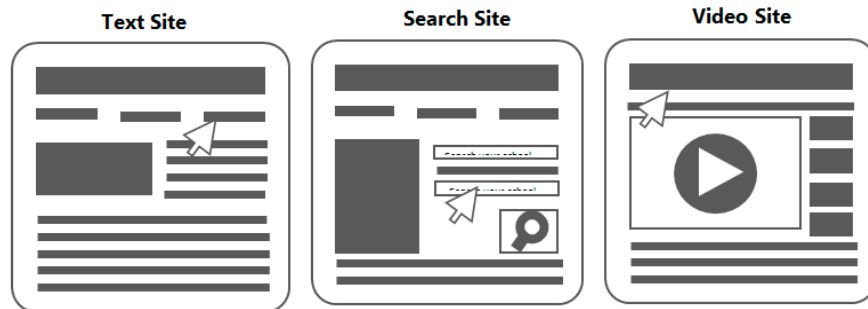
11. How much did playing Ramp It Up influence the way you make decisions about college financing?

- a) Very much
- b) Somewhat
- c) Not too much
- d) Not at all

12. When you played Ramp It Up, you visited several websites with information about college financing through the game. Have you re-visited any of those same websites when you were not playing the game?

- a) Yes
- b) No

Some of the sites that you saw had mostly text and links on them, others had videos, and others had search fields that allowed you to search for specific information:



Please answer the following questions about each of the different types of sites you saw.

13. Overall, how useful were the text sites?

- a) Very useful
- b) Somewhat useful
- c) Not too useful
- d) Not at all useful

14. Overall, how useful were the search sites?

- a) Very useful
- b) Somewhat useful
- c) Not too useful
- d) Not at all useful

15. Overall, how useful were the video sites?

- a) Very useful
- b) Somewhat useful
- c) Not too useful
- d) Not at all useful

16. Overall, how easy was it to see and use the text sites on your device?

- a) Very easy
- b) Somewhat easy
- c) Somewhat difficult
- d) Very difficult

17. Overall, how easy was it to see and use the search sites on your device?

- e) Very easy
- f) Somewhat easy
- g) Somewhat difficult
- h) Very difficult

18. Overall, how easy was it to see and use the video sites on your device?
- i) Very easy
 - j) Somewhat easy
 - k) Somewhat difficult
 - l) Very difficult
19. Did you feel like you knew how to find the information you needed on the websites?
- a) Definitely
 - b) Somewhat
 - c) Not too much
 - d) Not at all
20. Had you visited any of the websites shown in the Ramp It Up app before?
- a) Yes
 - b) No
 - c) Not sure
21. [If answer to q 20 = a or c] Which ones? Check all that apply.
- a) YouTube video about the FAFSA
 - b) MyCollegeDollars site with information about scholarships
 - c) Federal Student Aid site with information about financial aid and student loans
 - d) College Data site with information about graduation rates
 - e) Payscale site with information about salaries in different industries
 - f) Careerinfonet site with information on industry growth rates
 - g) FAFSA.gov site with the FAFSA application
 - h) None of the above
22. How likely is it that you will want to revisit some of the websites on your own time?
- a) Very likely
 - b) Somewhat likely
 - c) Somewhat unlikely
 - d) Very unlikely
23. Did you create an account on or sign up to receive emails from any of the websites you visited through Ramp It Up?
- a) Yes (please specify)
 - b) No
 - c) Not sure
24. How did playing Ramp It Up change your level of confidence about your ability to use other websites and resources about college financing?
- a) Made me much more confident
 - b) Made me somewhat more confident
 - c) Did not affect my confidence
25. With who have you shared the websites you visited through Ramp It Up?
- a) No one
 - b) Friends
 - c) Parents
 - d) Brothers or sisters
 - e) Other (please specify)
26. In addition to the sites you saw as part of Ramp It Up, have you visited any other websites that taught you about college financing?
- a) Yes
 - b) No
 - c) Not sure
27. [If answer to q 26 = a or c] What websites did you find?
- [open ended]



Next we will ask you a few questions about yourself and your future plans.

28. How interested are you in learning about how to pay for college?
- a) Very interested
 - b) Somewhat interested
 - c) Not too interested
 - d) Not at all interested
29. How interested are you in learning about how to pay for college through a mobile game?
- a) Very interested
 - b) Somewhat interested
 - c) Not too interested
 - d) Not at all interested
30. How interested are you in **attending** college?
- a) Very interested
 - b) Somewhat interested
 - c) Not too interested
 - d) Not at all interested
31. [If answer to q30 = a), b), or c)] Which of the following are you interested in?
- a) Certificate program
 - b) Taking a few college classes
 - c) Completing a 2-year Associate's degree
 - d) Completing a 4-year Bachelor's degree
 - e) Other (please specify)
32. How likely are you to **apply** for college?
- a) Very likely
 - b) Somewhat likely
 - c) Not too likely
 - d) Not at all likely
33. Overall, how likely are you to **attend** college?
- a) Very likely
 - b) Somewhat likely
 - c) Not too likely
 - d) Not at all likely
34. How likely are you to apply for financial aid?
- a) Very likely
 - b) Somewhat likely
 - c) Not too likely
 - d) Not at all likely
35. How likely are you to apply for scholarships to help you pay for college?
- a) Very likely
 - b) Somewhat likely
 - c) Not too likely
 - d) Not at all likely
36. Which of the following do you think are important things to keep in mind when making decisions about college choices and college financing? Select all that apply.
- a) College graduation rates
 - b) Starting salary after graduation
 - c) How much money I would have to take out in loans to pay for it



37. How confident are you that you can afford college?

- a) Very confident
- b) Somewhat confident
- c) Not too confident
- d) Not at all confident

38. How confident are you that you can **find** the right tools (informational websites, books, counselors, etc.) to help you make decisions related to paying for college?

- a) Very confident
- b) Somewhat confident
- c) Not too confident
- d) Not at all confident

39. How confident are you that you can **use** available tools (informational websites, books, counselors, etc.) to help you make decisions related to paying for college?

- a) Very confident
- b) Somewhat confident
- c) Not too confident
- d) Not at all confident

Now we will ask you a few questions about going to college and paying for it. Please try your best to answer each question. If you don't know the answer to some of them, give us your best guess!

40. Did you know that there is financial aid available to eligible college students?

- a) Yes
- b) No
- c) Not sure

41. Have you heard about the FAFSA?

- a) Yes
- b) No
- c) Not sure

42. If you answered "yes" to question 41, how did you hear about the FAFSA? Check all that apply.

- a) I asked/was told about it by a teacher
- b) I asked/was told about it by a counselor at school
- c) I asked/was told about it by a mentor outside of school
- d) I asked/was told about it by a brother or sister
- e) I asked/was told about it by a friend
- f) I asked/was told about it by my parent(s)/guardian(s)
- g) Through my own research
- h) Through an after-school program
- i) Through the news or on a blog
- j) Through social media
- k) Through Ramp It Up
- l) Through an ad (please specify)
- m) Other (Please specify)

43. If you answered "yes" to question 41, how likely are you to fill out the FAFSA?

- a) Very likely
- b) Somewhat likely
- c) Not too likely
- d) Not at all likely



44. On a scale of 1-10, how much do you know about each of the following (1 being "nothing at all" and 10 being "a lot"):

- The FAFSA
- The different types of financial aid available
- Tools that could help you choose the right school, major, or financing options
- Where to find tools that could help you choose the right school, major, or financing options
- The different scholarships you are eligible for
- Student loan types
- The average financial need that the schools you are interested in meet
- The graduation rates of the college(s) you are interested in attending
- How much money you could make after you graduate with a degree in your chosen major
- Whether the job you want is in a growing industry
- The net price at the college(s) you are interested in attending
- The average student debt at graduation at the college(s) you are interested in attending

Answer the following True/False questions to the best of your ability:

45. Filling out the FAFSA application is free.

- True
- False

46. The FAFSA tells you how much you are expected to pay for college.

- True
- False

47. The FAFSA provides access to grants, loans, and work-study from the Federal Government.

- True
- False

48. Grants are a form of gift aid.

- True
- False

49. Financial aid includes gift and non-gift options.

- True
- False

50. Work-study is a form of gift-aid.

- True
- False

51. Scholarships are a form of gift aid.

- True
- False

52. I can only qualify for scholarships if I play a sport.

- True
- False

53. I will have to pay back any scholarships that I am awarded.

- True
- False

54. Students can borrow federal and private loans to pay for college.

- True
- False

55. Federal loans cost less than private loans

- True
- False

56. You have to repay 100% of your student loans.

- True
- False

57. If I don't graduate, I won't have to repay my student loans.

- True
- False

58. The majority of students that go to college receive a discount.

- True
- False

59. I have looked up the graduation rates of the schools I am interested in.

- True
- False

60. I have looked up the salary and industry growth rate for the jobs I am interested in.

- True
- False

61. FAFSA funds are available on a first come first served basis, so it is important to fill out the application early.

- True
- False

62. My EFC (Expected Family Contribution) is the amount my family will have to pay for college.

- True
- False



Next (you're almost there!) we will ask you some more questions about yourself. Please remember that we really appreciate your honest answers!

63. If you were using Google or another search site to try to find websites with information on how to pay for college, what would you type into the search bar?

- [open ended]

64. What websites or other types of resources have you visited (if any) to find information about how to pay for college?

- [open ended]

65. How did you find these websites/resources?

- a) I asked/was told about it by a teacher
- b) I asked/was told about it by a counselor at school
- c) I asked/was told about it by a mentor outside of school
- d) I asked/was told about it by a brother or sister
- e) I asked/was told about it by a friend
- f) I asked/was told about it by my parent(s)/guardian(s)
- g) Through my own research
- h) Through an after-school program
- i) Through the news or on a blog
- j) Through social media
- k) Through an ad (please specify)
- l) Other (Please specify)

66. How likely is it that each of the following would make you want to play Ramp It Up? [scale for each option: very likely, somewhat likely, somewhat unlikely, very unlikely, don't know]

- a) If I saw Facebook ads for it
- b) If I saw Twitter ads for it
- c) If I saw posters or flyers at school
- d) If a flyer was sent home to my parents and they made me play it
- e) If a guidance counselor showed it to me
- f) If I saw it on a blog post or news article
- g) If I got an email about it from school
- h) If a friend recommended it
- i) Other (please specify)

67. How would you rate the marketing materials you saw? (1 star: worst rating, 5 stars: best rating)

- a. 1 star
- b. 2 stars
- c. 3 stars
- d. 4 stars
- e. 5 stars



Appendix D: Post-Survey 1 (Control Group)

Thank you for taking our survey! We will start by asking you a few questions about yourself and your future plans. It is important for us to hear your honest opinion, so please don't be shy! No right or wrong answers here.

1. What is your email?
a) (open ended; used to track students through surveys and gameplay)
2. What school do you go to?
a) [options to be added]
3. What is the name of the teacher who is having you take this survey?
a) [options to be added]
4. How interested are you in learning about how to pay for college?
a) Very interested
b) Somewhat interested
c) Not too interested
d) Not at all interested
5. How interested are you in learning about how to pay for college through a mobile game?
a) Very interested
b) Somewhat interested
c) Not too interested
d) Not at all interested
6. How interested are you in **attending** college?
a) Very interested
b) Somewhat interested
c) Not too interested
d) Not at all interested
7. [If answer to q6 = a), b), or c)] Which of the following are you interested in?
a) Certificate program
b) Taking a few college classes
c) Completing a 2-year Associate's degree
d) Completing a 4-year Bachelor's degree
e) Other (please specify)
8. How likely are you to **apply** for college?
a) Very likely
b) Somewhat likely
c) Not too likely
d) Not at all likely
9. Overall, how likely are you to **attend** college?
a) Very likely
b) Somewhat likely
c) Not too likely
d) Not at all likely
10. How likely are you to apply for financial aid?
a) Very likely
b) Somewhat likely
c) Not too likely
d) Not at all likely
11. How likely are you to apply for scholarships to help you pay for college?
a) Very likely
b) Somewhat likely
c) Not too likely
d) Not at all likely
12. Which of the following do you think are important things to keep in mind when making decisions about college choices and college financing? Select all that apply.
a) College graduation rates
b) Starting salary after graduation
c) How much money I would have to take out in loans to pay for it



13. How confident are you that you can afford college?

- a) Very confident
- b) Somewhat confident
- c) Not too confident
- d) Not at all confident

14. How confident are you that you can **find** the right tools (informational websites, books, counselors, etc.) to help you make decisions related to paying for college?

- a) Very confident
- b) Somewhat confident
- c) Not too confident
- d) Not at all confident

15. How confident are you that you can **use** available tools (informational websites, books, counselors, etc.) to help you make decisions related to paying for college?

- a) Very confident
- b) Somewhat confident
- c) Not too confident
- d) Not at all confident

Now we will ask you a few questions about going to college and paying for it. Please try your best to answer each question. If you don't know the answer to some of them, give us your best guess!

16. Did you know that there is financial aid available to eligible college students?

- a) Yes
- b) No
- c) Not sure

17. Have you heard about the FAFSA?

- a) Yes
- b) No
- c) Not sure

18. [If answer to q 17 = a] How did you hear about the FAFSA?

- a) I asked/was told about it by a teacher
- b) I asked/was told about it by a counselor at school
- c) I asked/was told about it by a mentor outside of school
- d) I asked/was told about it by a brother or sister
- e) I asked/was told about it by a friend
- f) I asked/was told about it by my parent(s)/guardian(s)
- g) Through my own research
- h) Through an after-school program
- i) Through the news or on a blog
- j) Through social media
- k) Through an ad (please specify)
- l) Other. Please specify.

19. [If answer to q 17 = a] How likely are you to fill out the FAFSA?

- a) Very likely
- b) Somewhat likely
- c) Not too likely
- d) Not at all likely

20. On a scale of 1-10, how much do you know about each of the following (1 being "nothing at all" and 10 being "a lot"):

- The FAFSA
- The different types of financial aid available



- Tools that could help you choose the right school, major, or financing options
- Where to find tools that could help you choose the right school, major, or financing options
- The different scholarships you are eligible for
- Student loan types
- The average financial need that the schools you are interested in meet
- The graduation rates of the college(s) you are interested in attending
- How much money you could make after you graduate with a degree in your chosen major
- Whether the job you want is in a growing industry
- The net price at the college(s) you are interested in attending
- The average student debt at graduation at the college(s) you are interested in attending

Answer the following True/False questions to the best of your ability:

21. Filling out the FAFSA application is free.

- True
- False

22. The FAFSA tells you how much you are expected to pay for college.

- True
- False

23. The FAFSA provides access to grants, loans, and work-study from the Federal Government.

- True
- False

24. Grants are a form of gift aid.

- True
- False

25. Financial aid includes gift and non-gift options.

- True
- False

26. Work-study is a form of gift-aid.

- True
- False

27. Scholarships are a form of gift aid.

- True
- False

28. I can only qualify for scholarships if I play a sport.

- True
- False

29. I will have to pay back any scholarships that I am awarded.

- True
- False

30. Students can borrow federal and private loans to pay for college.

- True
- False

31. Federal loans cost less than private loans

- True
- False

32. You have to repay 100% of your student loans.

- True
- False

33. If I don't graduate, I won't have to repay my student loans.

- True
- False

34. The majority of students that go to college receive a discount.

- True
- False

35. I have looked up the graduation rates of the schools I am interested in.

- True
- False

36. I have looked up the salary and industry growth rate for the jobs I am interested in.

- True
- False

37. FAFSA funds are available on a first come first served basis, so it is important to fill out the application early.

- True
- False

38. My EFC (Expected Family Contribution) is the amount my family will have to pay for college.

- True
- False



Now we will ask you a few questions about any college financing resources you may have seen before.

39. Have you ever tried to find information online about paying for college?

- a) Yes
- b) No
- c) I don't know

40. If you were using Google or another search site to try to find websites with information on how to pay for college, what would you type into the search bar?

- [open ended]

41. What websites or other types of resources have you visited (if any) to find information about how to pay for college?

- [open ended]

42. How did you find these websites/resources?

- a) I asked/was told about it by a teacher
- b) I asked/was told about it by a counselor at school
- c) I asked/was told about it by a mentor outside of school
- d) I asked/was told about it by a brother or sister
- e) I asked/was told about it by a friend
- f) I asked/was told about it by my parent(s)/guardian(s)
- g) Through my own research
- h) Through an after-school program
- i) Through the news or on a blog
- j) Through social media
- k) Through an ad (please specify)
- l) Other. Please specify.



Appendix E: Treatment and Control Group demographics.

PAY	TREATMENT %	CONTROL %
<i>My parent(s)/guardian(s)</i>	9.8	15.1
<i>Mentoring program</i>	34.6	28.5
<i>Both me and my parent(s)/guardian(s)</i>	44.1	44.1
<i>My family and I have not talked about it</i>	8.9	5.6
<i>I don't plan to go to college</i>	2.6	6.7
<i>Total</i>	100 (n=644)	100 (n = 179)

TOUCH	TREATMENT %	CONTROL %
<i>High Touch</i>	28.4	10.9
<i>High Touch</i>	71.6	89.1
<i>Total</i>	100 (n = 712)	100 (n = 193)

GENDER	TREATMENT %	CONTROL %
<i>Female</i>	53.1	83.4
<i>Male</i>	44.9	16.1
<i>Self-identity</i>	1.3	.5
<i>Prefer not to answer</i>	0.7	
<i>Total</i>	100 (n = 699)	100 (n = 193)

PARENT COLLEGE	TREATMENT %	CONTROL %
<i>Yes</i>	39.1	49.2
<i>No</i>	55.4	48.7
<i>I don't know</i>	5.6	2.1
<i>Total</i>	100 (n = 699)	100 (n = 193)

LUNCH	TREATMENT %	CONTROL %
<i>Yes: Free</i>	54.5	54.9
<i>Yes: Reduced</i>	12.0	7.3
<i>No</i>	23.6	22.3
<i>Prefer not to answer</i>	1.4	0.5
<i>I don't know</i>	8.4	15.0
<i>Total</i>	100 (n = 699)	100 (n = 193)

RACE	TREATMENT %	CONTROL %
<i>White</i>	29.2	38.6
<i>Hispanic Latino</i>	48.5	48.7
<i>All Other</i>	22.3	12.7
<i>Total</i>	100 (n = 699)	100 (n = 189)

GPA (MEAN)	TREATMENT %	CONTROL %
	2.9 (n = 699)	3.1 (n = 189)



ⁱ <https://www.nytimes.com/2014/05/27/upshot/is-college-worth-it-clearly-new-data-say.html?abt=0002&abg=1&r=0>

ⁱⁱ The Pew Research Center released a report in 2014, 'The Rising Cost of Not Going to College,' showing that the difference in median annual earnings of college and high school graduates at ages 25 to 32 was about \$7,500 in 1965 and ballooned to \$17,500 in 2013, consistent with the trend over time.

ⁱⁱⁱ College Board, Annual Survey of Colleges; NCES, IPEDS data. <https://trends.collegeboard.org/college-pricing/figures-tables/tuition-fees-room-and-board-over-time> accessed: 3/3/2017

^{iv} Ibid.

^v <https://www.usnews.com/education/best-colleges/the-short-list-college/articles/2016-07-12/10-universities-where-the-most-freshmen-commute-to-campus> accessed: 3/3/2017

^{vi} A 2013 article in U.S News and World Report found that students at the University of Idaho spend about \$1,100 per year on transportation and students at Glendale Community College in CA spend between \$1200 and \$1300 a year on transportation. Source: <https://www.usnews.com/education/best-colleges/paying-for-college/articles/2013/08/14/budget-save-for-college-commuting-costs> accessed: 3/3/2017

^{vii} <https://www.nytimes.com/2016/06/23/education/food-pantries-address-a-growing-hunger-problem-at-colleges.html>

^{viii} U.S. Department of Education, National Center for Education Statistics. (2016). The Condition of Education 2016 (NCES 2016-144), Sources of Financial Aid . <https://nces.ed.gov/fastfacts/display.asp?id=31> accessed 3/3/2017

^{ix} The Institute for College Access and Success has produced numerous reports supporting this, including "Paving the Way: How Financial Aid Awareness Affects College Access and Success" (2008) accessed online on 3/3/2017: http://ticas.org/sites/default/files/pub_files/Paving_the_Way.pdf

^x U.S. Department of Education, National Center for Education Statistics. (2016). The Condition of Education 2016 (NCES 2016-144), Immediate College Enrollment Rate.

^{xi} Castleman, B. L., & Page, L. C. (2013). Can Text Messages Mitigate Summer Melt? New England Journal of Higher Education, 2.

^{xii} Wagmiller, Robert. "Debt and Assets Among Low-Income Families." National Center for Children in Poverty. October 2003.

^{xiii} U.S. Department of Education online: <https://www.ed.gov/news/press-releases/persistent-disparities-found-through-comprehensive-civil-rights-survey-underscore-need-continued-focus-equity-king-says> accessed 3/3/2017

^{xiv} Bui, Khanh Van T. "First-generation college students at a four-year university: background characteristics, reasons for pursuing higher education, and first-year experiences." College Student Journal, vol. 36, no. 1, 2002, p. 3+. Academic OneFile, Accessed 6 Mar. 2017.

^{xv} <https://www.cdc.gov/socialdeterminants/> accessed, 3/10/2017

^{xvi} <http://www.apa.org/helpcenter/stress-teens.aspx>

^{xvii} School-level demographic data was obtained from The Office of Civil Rights at the Department of Education: <http://ocrdata.ed.gov/>. It was available for all schools except for the participating school in Newark, NJ, which is omitted from this table.