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# Using Behavioral Economics for Postsecondary Success

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Many well-intentioned postsecondary programs and services underperform because people don't behave the way we expect. Programs aren't taken up by the families who need them, students don't follow through even though they intend to, and scarce resources are often not spent the way program designers anticipate. Behavioral economics provides a new way to help us understand why we arrive at these sub-optimal outcomes by providing insight into how people behave and make decisions. This paper invites readers to think deeply about the behaviors that are impacting decision making and to think creatively about how behavioral economics can be applied to improve postsecondary success.

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# About ideas42

ideas42 is a non-profit that uses the insights of behavioral economics – which helps us understand the choices and decisions people make – to design innovative solutions to social problems at scale. We do this by carefully dissecting the behavioral issues that prevent otherwise well-designed programs and products from achieving their goals. We then design remedies that use insights from behavioral economics that strive to mitigate or overcome these issues.

The consequences of the behavioral issues we tackle are often profound. A failure to adhere to medication can be life-threatening. Dropping out of school can prevent a person from achieving her potential. All too often, the reasons for these failures turn out to be small and remediable – but also usually overlooked or dismissed as unimportant. Our work is therefore often about identifying subtle but important contextual details and designing innovative solutions that overcome their effects.

We work in a number of areas: consumer finance, economic mobility and opportunity, health, education, energy efficiency, and international development. Our work involves a lot of observation, plenty of patience, and a willingness to be surprised. Most of all, though, it involves asking questions that others may not ask – questions which we believe are the right questions to be asking.

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# 1. Introduction and Summary

A consensus has emerged that increasing the number of graduates from quality postsecondary education programs is critical. America's future economic competitiveness and individuals' economic opportunity depends on it. The focus has now shifted to improving this hard-to-move outcome – figuring out what is cost-effective and designing postsecondary policies and programs that are effective. Behavioral economics, and more specifically the emerging practice of behavioral design, has much to contribute to these efforts.

Many well-intentioned programs, in education and in other domains, underperform because people do not behave the way we expect. Programs are not taken up by the people who need them, people don't follow through even though they intend to, and scarce resources are often not spent the way program designers anticipate. Behavioral economics provides a new way to help us understand why we arrive at these suboptimal outcomes by providing insight into how people behave and make decisions. And when we are better able to understand and diagnose the "behavioral bottlenecks" people are experiencing as they navigate programs and policies, we can design more effective solutions.

Behavioral design has already shown potential to make programs in postsecondary education work better. Take, for example, the financial aid access study conducted at H&R Block. Existing policy thinking would suggest that the hassles and frustrations of an eight-page financial aid form would not be great enough to prevent people from applying for financial aid worth tens of thousands of dollars in grants and loans, let alone from going to college. Yet, these seemingly small and inconsequential details do undermine people's intentions to act. A group that received targeted help (like pre-filling forms with information used for tax filing and assistance filling out the form) was not only more likely to file their financial aid forms but also more likely to attend college. This was especially true among low-income households (Bettinger,

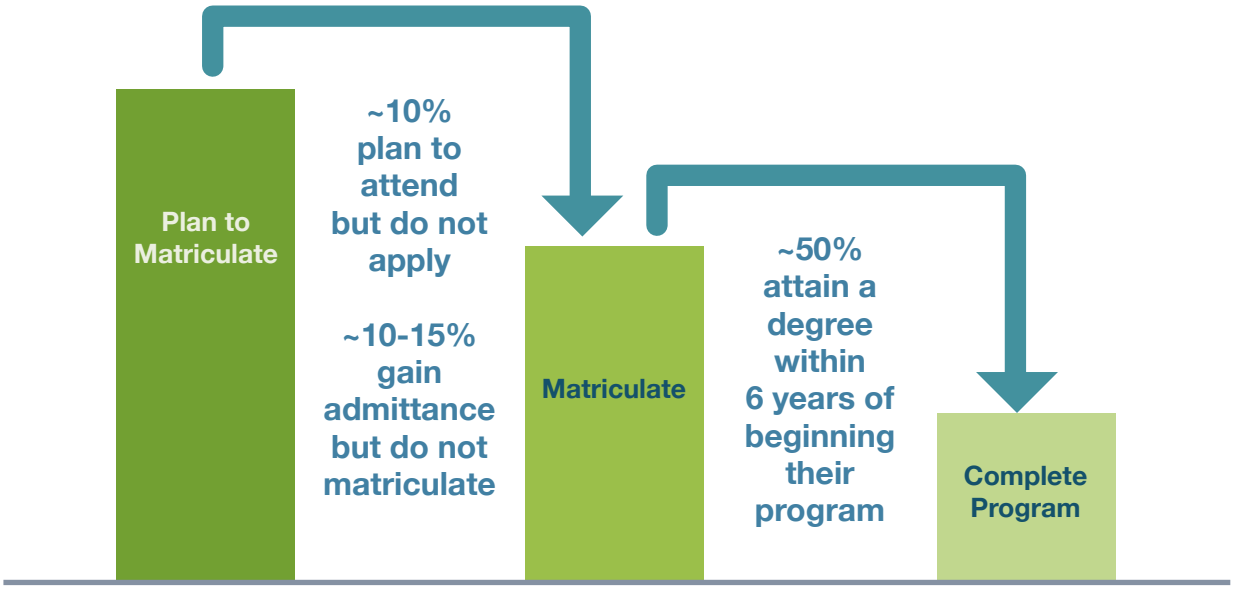
Long, Oreopoulos, & Sanbonmatsu, 2009). It's a telling example of how a comparatively low-cost intervention, designed to deal with how humans behave, can have a significant and scalable impact.

In spite of a growing awareness of behavioral economics, there is still significant untapped potential for applying behavioral design in postsecondary education. Here are a few illustrative examples:

- Although as many as 93 percent of high school seniors aspire to attend college (Ross et al., 2012), far fewer actually expect to attend college, especially students whose parents have relatively low levels of educational attainment (Ross et al., 2012; Elliott, 2009). So, although students themselves see postsecondary education as the best path toward economic mobility, many don't view it as a realistic possibility. **How can programs be better designed to address this gap between students' aspirations and expectations for postsecondary education?**

- Ten to fifteen percent of students who have been accepted to postsecondary programs do not end up matriculating (Castleman & Page, forthcoming). **How can programs and systems be adjusted to make sure these students, who have already done the hard work of preparing for, applying to, and being admitted to school, end up matriculating and completing postsecondary education?**

- High school graduates with associate's degrees earn about 25 percent more than other high school graduates, and those with bachelor's degrees earn over 50 percent more (Ross et al., 2012). Yet, only about 50 percent of postsecondary students attain a degree or certificate within six years of beginning their program, and only 35 percent of black males who begin postsecondary programs graduate within six years of starting them (Ross et al., 2012). **How can programs and systems be tweaked to improve postsecondary completion rates as low as these?**




Source: NCES, 2012, Elliott 2012, Ross, Kena, Rathbun, KewalRamani, Zhang, Kristapovich, and Manning, 2012

This paper is meant to ignite discussion, generate ideas, and inspire innovation around pressing questions like these. We start by fleshing out the financial aid example to highlight the promise of the behavioral approach, especially compared to alternative strategies for changing behavior (like information campaigns and financial incentives). We then discuss the importance of diagnosing behavioral problems before designing solutions, since even behavioral approaches fail when they are premised on the wrong underlying psychological assumptions. We highlight a few behavioral concepts, which are common to all of us, that we believe are particularly relevant to how human psychology influences postsecondary outcomes. And we explain how some promising interventions currently being field tested are addressing these behaviors, although these efforts are just scratching the surface of what is possible.

We approach this paper by dividing students' lives into three key chronological stages: 1. postsecondary preparation, 2. transition to postsecondary education, and 3. postsecondary completion. We recognize there are many ways to approach the chronology of students' lives, and there are threads that run through and connect these stages. We also acknowledge that postsecondary paths, for many students, are anything but linear. In part, we made the decision of where to divide these stages in recognition that the time horizon for achieving postsecondary success is long, yet in certain cases the time frame for decisions and actions is quite short. For example, a student's expectations for attending college may be formed during a number of years in early childhood, while the window for submitting college applications or choosing freshman coursework may be a narrow few months or even weeks. For the purpose of digesting behavioral issues, we find this to be a helpful framework. The highlights are below.

*"This paper is meant to ignite discussion, generate ideas, and inspire innovation."*

### Our use of the term "Postsecondary Education" in this paper

We use the term "postsecondary education" to refer to any type of higher education that leads a student toward greater economic self-sufficiency. We don't prescribe a specific type of postsecondary education (e.g., degree vs. certificate program, four-year vs. two-year institution, public vs. private institution). Instead, we use the term postsecondary education as an umbrella for the various options that are available to meet students' educational and financial needs.

## Postsecondary Preparation:

This stage most often consists of the years leading up to graduation from high school. We focus on the long-term, academic and mental preparation required for success at the postsecondary level rather than focusing on short-term tasks and decisions such as filling out a college application. During this stage, students' and families' mental representations of themselves, as well as their perceptions of future

outcomes, can influence their decision making—not only small, routine decisions but also important decisions that take shape in student performance and parental support. These mental representations can be influenced by situational factors, the details of which may seem inconsequential but which are really important for designing effective interventions. As an example, we describe the gap between students' aspirations and expectations to attend college and the ways in which student savings accounts might influence expectations to attend a postsecondary institution.

## Transition to Postsecondary Education:

This stage often consists of the last year or two of high school, as well as the summer between high school and a postsecondary program, when a student has been accepted into a postsecondary institution but has not yet matriculated. This transition could also take place later in life when an adult is considering his or her options to go back to school. We focus on activities such as the search, application, choice, and enrollment processes for postsecondary programs and financial aid. This stage involves relatively short-term and/or one-time decisions that often have hard deadlines and can heavily influence outcomes and choices down the road. Decisions about which school to attend, whether or not to apply for financial aid, and which loan products to use are examples of these high-impact decisions. We describe how common decision-making tendencies, such as failures to follow through on intentions, can undermine aspirations to attend a postsecondary institution. Alternatively, framing a decision in a useful way and offering simple support systems can help students and families make better choices and follow through on their plans. As an example, we describe a set of interventions that help students through the summer between high school and college. It is during this important time that students must take the critical steps required to matriculate, but a surprisingly large number fail to do so.

## Postsecondary Completion:

This stage consists of the years during a postsecondary program. We focus on the potential causes of lack of completion. Since all people have a limited ability to process information and exert mental energy, a lack of structure and an overabundance of choice and freedom can undermine student persistence and achievement at postsecondary institutions. In fact, mental exhaustion may cause students to make the worst decisions and have the lowest academic performance during those times (such as finals period at the end of the semester or enrollment periods) when it is most important for them to focus and remain on task. To avoid these pitfalls, environments and systems can be structured in a way that limits the need to decide between alternatives or exert mental energy unnecessarily. As an example, we describe how an innovative community college is providing better choice architecture and giving students structure that may encourage them to stay on course.

The examples we provide are meant to be illustrative. Our list is not comprehensive, and the behavioral principles are neither perfectly discrete, exhaustive, nor confined only to the stages with which we associate them. Similarly, the intervention examples we offer are not the only or even the best solutions. The idea that pervades our approach is that the best design solutions can only be identified through a rigorous process of problem diagnosis and testing. The illustrations in this paper are rather invitations for readers to think more thoroughly about the behaviors that are impacting decisions and to think creatively about how behavioral economics can potentially be applied in postsecondary program design.

There will be future convenings and other vehicles to provide a way for practitioners, policymakers, and behavioral design experts to share ideas so that we can collectively start the process of reframing problems and innovating solutions to improve postsecondary outcomes in the US. Our goal is to forge partnerships so that we can engage not only in the creative work of behavioral diagnosis and program design but also in rigorous evaluation, which we consider to be an essential step before scaling any interventions. This diagnosis, design and testing process will enable us to know with confidence what works and should be taken to scale. ■

## What's the best type of postsecondary education?

In this paper, we aren't judging which postsecondary education programs are "better." More postsecondary education is generally associated with greater economic gains, with every year resulting in a 5- to 15-percent return on additional earnings (Kane & Rouse, 1995; Hartog, 1999). However, there is mixed evidence on what kind of postsecondary program actually leads to increased earnings or more financial success. For example, earnings can vary with a student's field of study, chosen industry, and the types of classes taken (Donhardt, 2004; Jacobson, LaLonde, & Sullivan, 2004). Institutions vary significantly in their effectiveness in training students and their costs. And whether or not existing measures of quality, such as ranking systems, accurately identify institutions with better programs is unclear. In certain cases, we highlight specific contextual details related to one kind of institution or another, such as the "open enrollment" structure of a community college or the deadline-driven architecture of a four-year institution. We do so to convey the importance of these details when diagnosing problems and designing solutions, as opposed to evaluating the merits of these postsecondary options. These are important issues and ones where behavioral design can be used to help people make the decisions that are best for them.

# 2. An Example: Financial Aid Access

While there are many problems unique to postsecondary education, many of the behavioral insights that can inform program design in postsecondary education are fallibilities that are common to all individuals. For instance, some of the same behavioral pitfalls that keep us from improving our health or investing in retirement can also cause a failure to attain postsecondary education.

Our decisions and actions in many aspects of life—from saving and spending to health and education—are driven by similar kinds of situational influences, mental short-cuts, and cognitive fatigue. By understanding these behavioral principles and the details of the context in which they operate, we can design more effective interventions to improve postsecondary outcomes.

A common challenge in postsecondary education is that people often don't react the way program designers intend. People don't take advantage of all of the resources available to them, despite lots of encouragement. Those most in need of a service may be the least likely to use it, in spite of thoughtful efforts to engage them. And people may have the best intentions but then fail to follow through. As a result, people can make decisions or behave in ways that have significant, negative consequences. For example, students may not enroll in a postsecondary program simply because they fail to send their deposit on time, even after gaining acceptance and securing a generous financial aid package. Other students may end up spending more money at a lower-tier institution, even though the cost of attending a higher-tier institution, for which they are better matched, is lower. They do so because they are overwhelmed by the choices and/or perhaps they use a simple mental model to choose: the lower-tier school must be less

expensive. Despite the inspiring successes of various policies and programs to improve postsecondary education, there remain significant gaps between desired and existing outcomes.

Behavioral economics sheds new light on the way we make decisions and behave and offers tools to improve the ways programs are designed. Walking through the problem of financial aid access helps illustrate these ideas.

- Many of the students most in need of financial aid are also some of the least likely to take advantage of the options available to them (King, 2004, as cited in TICAS, 2008). Even though students with more grant aid and smaller loan burdens tend to persist at higher rates, one in four low-income students who qualify for Pell grants do not even apply for federal aid. (Bresciani & Carson, 2002). **Why don't students apply?**

## Typical Approaches to Diagnosing Problems:

How do we tend to diagnose this financial aid problem? One possible reason families don't apply for federal aid is that they can't afford college even with aid, so there's no need to fill out the required **Free Application for Federal Student Aid (FAFSA)**. Another reason is that students and families are unaware of the FAFSA, how to fill it out, or how to file it. Each of these explanations makes presumptions about how students and their families behave. In the first case, we assume it's affordability that's driving families' decision making. In the second, we assume they don't know about the FAFSA or understand the process. Usually, approaches to solving problems flow directly from these diagnoses. For example, when we think that families are deterred by the high costs of college, we try to rejigger the costs and benefits. A typical strategy is to use financial incentives like grants or scholarships to make college a more attractive choice. Alternatively, when we think that families "don't know," we try to give them more information and education about the FAFSA. We design informational tools and marketing campaigns to raise awareness.

## A Behavioral Approach:

It's not that the diagnoses described above aren't plausible or that the solutions aren't well intentioned. Rather, they miss parts of the decision-making problem, and so they don't lead us to a solution that will overcome these other barriers. For example, the H&R Block FAFSA experiment showed that even when families have information (even personalized information) about financial aid, they still don't file the needed forms. Similarly, there's an abundance of online resources for informing students about different postsecondary institutions and financial aid options. While students might say that informational resources are helpful, many students who qualify for aid still don't apply.

By contrast, behavioral economics teaches us that we need to examine the often overlooked details of a situation to really understand what's informing people's decisions. People may have the best intentions, but the features of a situation make it difficult to follow through. When we take a closer look at the FAFSA, we see that it's an eight-page form, contains 100 questions, and is four times longer than IRS Form

1040EZ, the simplest tax return form (Bettinger et al., 2009; Dynarski & Scott-Clayton, 2006). The filing process and the timing are complicated, and there's redundancy with what families already provide on tax returns. It's easy to see that the process and the complexity of the form are hassles and might cause frustrations. Common theory about how people weigh costs and benefits, however, would suggest that these hassles wouldn't prevent a family from applying for financial assistance worth tens of thousands of dollars in total aid (including grants and loans). But when we look at the problem through a behavioral lens, we realize that's not the case: these small factors do make a big difference.

How might seemingly trivial things undermine students' intentions to file their FAFSA? When students think about submitting their FAFSA, they're likely not weighing the pros and cons of their decision in any rigorous or systematic way. For instance, they're not evaluating whether the potential benefits of the financial aid justify the transaction costs. Rather, they're swayed by what's salient today. The process takes time and may be frustrating. The details are generally un-enjoyable. Do I want to do this uncomfortable

## The H&R Block FAFSA Experiment

In 2008, top education researchers partnered with the national tax preparer, H&R Block, to test the role of simplification and information in the financial aid application process and its impact on college decision making. Using a randomized experimental design, the researchers tested two interventions:

- One group of low- and moderate- income families received help from H&R Block professionals completing and submitting their FAFSA. Staff used a technology tool to pre-populate most of the FAFSA using the family's tax information, asked some additional questions to fill in the gaps, provided personalized aid estimates, and then offered to file the FAFSA electronically.

- A second group received personalized information about their eligibility for federal financial aid and tuition information about nearby colleges, but they didn't receive any help with their FAFSA.

When compared with a control group, the information-only intervention had no statistically significant effect on the submission of financial aid applications. However, the group that received assistance completing their FAFSA was 15.7 percentage points more likely to file their application than the control group. Even more importantly, the group that received assistance was significantly more likely to enroll in college the next fall (a relative increase of about 29 percent) (Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2009).

The results suggest that relatively small changes to a complicated process can have a significant impact on postsecondary outcomes.

thing now, or can I put it off until tomorrow? The problem with procrastination is that when a student delays action until tomorrow, they don't foresee that they're likely to put it off again and again. A tomorrow where they complete the form never comes. The details that cause the procrastination may seem trivial, but the consequences of the procrastination (e.g., not filing) can be costly.

Another culprit may be the failure of prospective memory. Even if a family has every intention of filing their FAFSA, they may simply forget to initiate the process. It's easy to think of many circumstances that have smaller consequences, such as forgetting to return a library book or missing a credit card payment. It's not that people don't think about these things. They may, however, remember when it's not convenient to perform the action (e.g., while at work or when they are falling asleep). The same is the case when the consequences are much larger. A family may have every intention of completing the FAFSA but may not think of it at the opportune moment (e.g., when they have adequate internet access or when financial documentation is accessible). Memory may especially play a role with the FAFSA since the associated activities (e.g., collecting financial documentation, thinking about college costs) may strain the same limited cognitive resources that families are already using to juggle their day-to-day finances.

The interventions offered as part of the H&R block experiment leverage these behavioral insights in a number of ways. First, families were asked to focus their attention on the FAFSA at a moment when they were already primed to think about financial matters and had documentation in hand (Bettinger et al., 2009). Second, since forms were pre-filled with information already used for tax filing, families could maximize the benefits from costs they'd already incurred (time and cognitive resources). Also, by having support in navigating the forms, the frustration, hassle and stress of doing it independently were reduced. Most important of all, the results underscore the insight that a seemingly small decision, like not submitting the FAFSA, can lead to a very large loss, like not enrolling in college (Bettinger et al., 2009).

*"We are reminded of the power of situational details and the importance of looking at context when diagnosing a problem."*

The financial aid example is instructive for a few key reasons. First and foremost, it helps us see how behavioral problem diagnosis can lead to solutions that work in postsecondary education. We are reminded of the power of situational details and the importance of looking at context when diagnosing a problem. We ask different kinds of questions, and we try not to make presumptions about what the solution should be before we've diagnosed the problem. Procrastination and prospective memory are just examples of behavioral insights that help us explain behavior in this particular context. Each problem requires generating behavioral insights unique to the situation. And the best solutions usually follow directly from the diagnosis.

Second, behavioral interventions are often cost-effective and relatively easy to scale compared to alternatives. Contrast the relatively inexpensive assistance provided in the FAFSA experiment with, for example, the cost of financial incentives. In the FAFSA experiment, assistance included the pre-population of data (using technology), some guided questions, and information-sharing conducted by an existing staff person. The total cost per subject in the treatment group was $87.50, and for every 100 subjects treated, 8 were induced into college (eight percentage point increase). The implied cost per student induced into

| | Cal Grant A (State Grant Program) | FAFSA Assistance |
|---|---|---|
| Cost per participant | ~$3,609 per student accepting award [1] | $87.50 per student receiving assistance |
| Increase in likelihood of college attendance | 4 percentage points (between 3 and 4) | 8 percentage points |
| Cost per student induced into college | $72,180 | $1,094 |
| Increase in Enrollment Per $1M spent | 14 students | 914 students |

college was $1,094. While financial incentives have, in some cases, shown some promise to increase college enrollment, they are extremely expensive to execute. As a simplified example, consider one study that estimated a four percentage point increase in enrollment rates among California students who applied for financial aid and were eligible for a type of state grant. The median award was $3,609 (Kane, 2003). Therefore, although the grant may have had other benefits such as increased persistence rates, every million dollars that California State spent on Cal Grant A appears to have resulted in only an additional 14 students enrolling[2]. By contrast, the H&R Block study suggests that this same money spent on filling out the FASFA would mean 914 additional student enrollments.

Lastly, the H&R Block experiment shows how behavioral interventions can potentially have even greater benefit for low- and moderate-income families. Individuals facing a scarcity of resources—such as time or money—have less room for error, making each of their decisions (and mistakes) more consequential (Shah, Mullainathan, & Shafir, 2012; Bertrand, Mullainathan, & Shafir, 2004). Scarcity requires people to spend more cognitive bandwidth managing these limited resources, leaving them with less capacity to make decisions and carry out actions. Living in constant scarcity can make people more prone to mistakes, a dynamic which gets compounded since there's less room for error. For a low-income student, navigating college financing decisions like the FAFSA is cognitively depleting, and there are drastic consequences for not succeeding. A primarily goal of our work is therefore to identify other similarly high-impact decision points, where behavioral insights can help students optimize use of their limited cognitive resources and maximize their decision-making potential.■

1. Note that $3,609 is the median and not the average award amount; we use this amount as a proxy.

2. The calculation used to estimate the total number of students induced per $1 million spent on the program is as follows: The study found that 80 to 89 percent of students estimated to be eligible for the award actually received the award if they decided to enroll in college. Assume that among eligible students who applied for financial aid, 80 percent received the median award of $3,609 on average. Therefore, the program costs $288,720 for every 100 students who are eligible for the grant. Also assume that the program resulted in a four percentage point increase in enrollment rates. This means that the program costs $288,720 to induce four new students into enrolling, which is the equivalent of $72,180 per induced student or fourteen induced students for every $1,000,000 spent on the program.

# 3. How Behavioral Economics Can Improve Outcomes in Postsecondary Education

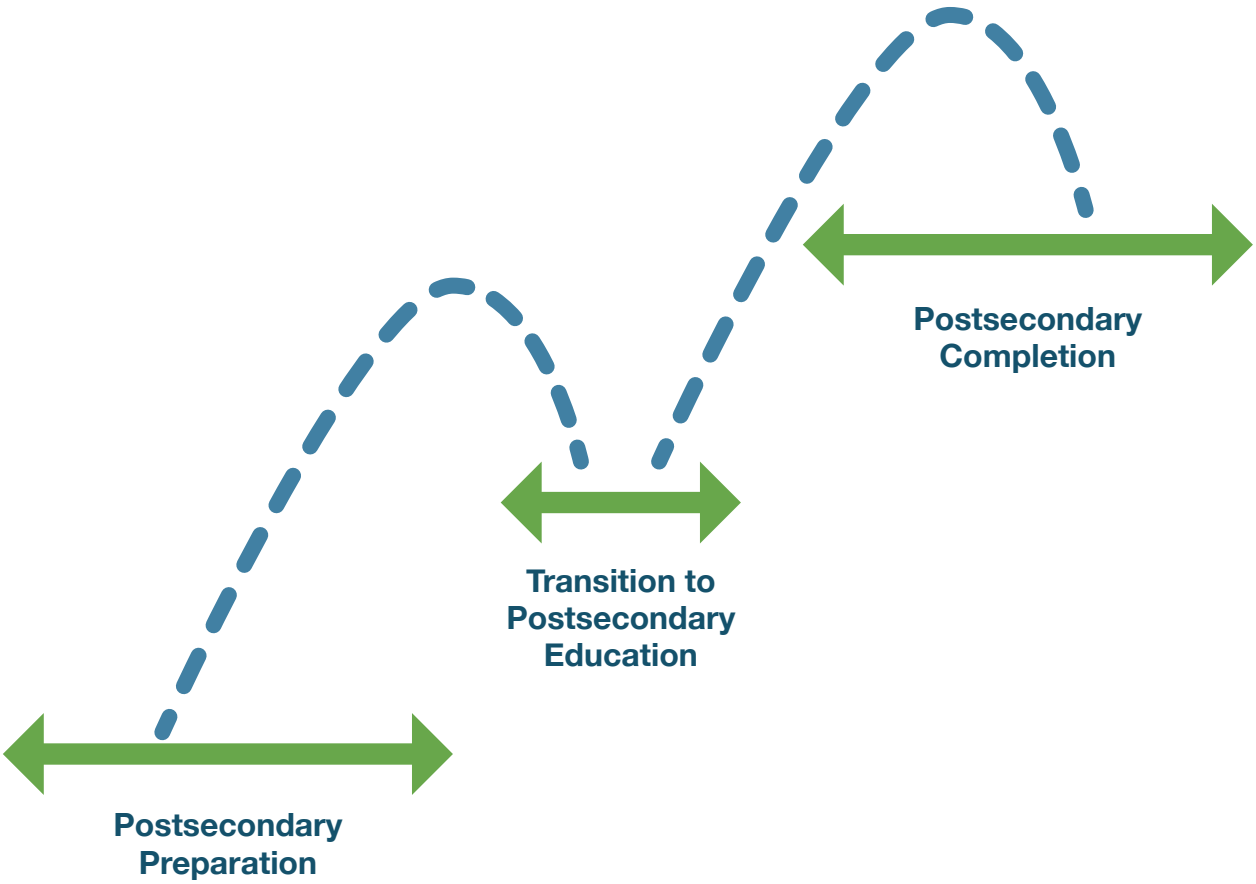
When we incorporate the insights of behavioral economics into other areas of postsecondary education, there is a wide range of behavioral insights that can be applied. Hassle factors, procrastination and prospective memory are just a few of many that impact students and their families. We use these insights to help us understand the root of the problems we're trying to solve.

Only once we identify the likely psychological phenomena that are impacting decision making in a particular context can we then systematically apply these insights in the form of program design. So how do we go about applying this approach more broadly in postsecondary education?

The path to postsecondary education is long, and in some cases, winding. When we start to catalogue the decisions and actions that lead to success in postsecondary education, we see the obvious: the number of decision and action points is daunting, and there are many places to falter. But the less obvious point is that while some decision points are discrete and time-limited, others have very long time horizons. For example, students may form their expectations for going to college or pursuing a particular career in childhood over the course of many formative years. But when it comes time to submit applications and financial aid paperwork or register for courses, the windows are narrow and the deadlines are quick to pass. Also, during the early phases of postsecondary preparation, a parent or caregiver may have significant

influence in shaping students' decision making, while in later stages of postsecondary education the onus falls more squarely on the student or the postsecondary institution.

For the sake of honing in on some of these important contextual details, we've divided students' lives into three chronological stages. For each of these stages – postsecondary preparation, transition to postsecondary education, and postsecondary completion – we offer examples of behavioral insights that we think are shaping students' (and in some cases families') decision making. We intend for these insights to be illustrative rather than definitive or exhaustive. Depending on the specific context, there may be a variety of behaviors to consider or constraints to understand. What we illustrate, however, is the importance of considering these behavioral factors, as well as the ways in which these insights can be leveraged in behavioral interventions. Specifically, for each chronological stage we offer examples of behavioral principles that play a prominent role in that particular phase and the implications for program design. We then share a brief case study for each stage to provide a concrete example. ■



# 3.1. Postsecondary Preparation Outcomes

We define postsecondary preparation as the activities that help a student become academically, psychologically, and otherwise "ready" for success in postsecondary education. This requires completion of several smaller, often repeated tasks over long time periods.

Here are just a few examples:

- Students must enroll in school every year, progress through a high school curriculum (which involves enrolling in classes every year that ideally set a student on the path to graduate with his or her peers), and complete requirements for graduation or a GED.
- To prepare students for entry in a postsecondary program, students ideally complete minimum requirements for that program, which do not always align with minimum requirements for high school graduation, and sometimes standardized tests, such as the SAT or ACT.
- This phase may include other steps, such as preparing financially for a postsecondary program or working hard at an extracurricular activity with the intention of earning a scholarship.

High schools are the primary institutions with which most students interact during this phase, though community organizations and religious institutions may also play an important role, and families (broadly defined) tend to have a strong influence on students. But this phase begins even earlier than high school, since early childhood activities and preschool may influence later outcomes (Heckman, Pinto, & Savelyev, 2012; Pianta, Barnett, Burchinal, & Thornburg, 2009). Therefore, we focus in this section on how preparatory activities over a long time period, specifically those influenced by students' and families' perceptions of themselves and their futures, can influence outcomes.

## Behavioral Insight: How identity shapes expectations

Identity plays a significant role in shaping students' expectations for postsecondary education. When we think about identity, we tend to assume that who we are plays a significant role in our decisions and actions. Being a Haitian-American, for example, might have particular implications for how one approaches a decision or the choices considered. However, the more powerful insight is that people do not have one identity that is internally consistent and stable over time. Rather, people have multiple identities: a Haitian-American, a student, a Mets fan, a math lover, a dancer, a female, and so on. Situational influences can make different identities salient at a given time, lending themselves to different actions depending on the context. For example, as a member of one's immigrant community, a student may feel compelled to stay close to home for college. However, as a National Merit Scholar, a student may desire to attend a highly ranked school, even though none are located close to home.

Research on students has shown the subtle yet powerful ways that identity can actually be primed in a particular context or environment. In one study, African-American students randomly asked to indicate their race on a test correctly solved about half as many items on average as those not asked their race (Steele & Aronson, 1995). When situations prime negative identities involving stereotypes, they can significantly undercut students' performance and widen the gap between college aspirations and attainment.

*"When positive identities are primed, there is real promise for impacting student performance for the better."*

But when positive identities are primed, there is real promise for impacting student performance for the better. For example, a student who feels that she is part of an academic community and that this identity represents her "true" self tends to fair better academically (Farrington et al., 2012; Harvey & Schroder, 1963; Oyserman, Bybee, & Terry, 2006). Her mindset is such that she may be more confident in her abilities and work harder at school to confirm this pre-existing belief. Similarly, a student who perceives she is capable of overcoming obstacles and achieving goals will likely be more resilient and successful in her academic future. If identities like these can be made salient at critical junctures in her primary and secondary education, we can influence the way she makes choices that impact her educational future.

Since identity salience can have powerful influences on behavior, it is a concept with potentially high-leverage applications in program design. The environmental cues and signals used to prime identities can range from somewhat explicit to subtle and can still influence behavior.

**Explicit example: "You have a talent for business; have you considered business school?"**
**More subtle example: Hanging a college banner or flag alongside a picture of a student.**

Regardless of the approach, effective interventions should focus on priming identities that are conducive to a desired postsecondary behavior. Also, the right identity should be primed specifically at the time when students are in a position to act. For example, schools might ask students to recall and write about an

experience when they were particularly gritty and hardworking right before they choose their course load. Evoking identities conducive to desired behaviors, specifically at the right times, can help students make important decisions in their best interests.

## Behavioral Insight: Perceptions of the future influence behavior today

Another behavioral dynamic at play in postsecondary preparation is that we tend to overestimate our intentions and underweight the situational factors that influence our future behavior (Koehler & Poon, 2006). For example, people tend to want healthy foods like vegetables in the distant future. However, when we're making decisions in the nearer term, we tend to opt for less healthy food, like ice cream (Milkman, Rogers, & Bazerman, 2010). This tension between what we ought to do in the future versus what we really want to do today is present in many areas of our lives. Just think about your own efforts to save money or go to the gym.

*"By having specific, actionable goals, students can make their future seem nearer and more relevant."*

The crux of the postsecondary preparation problem is that students aspire to pursue postsecondary education but then fail to take important actions in the present or near future. The present can dominate the attention of students. When a gain in the future comes at the cost of upfront losses, the present often wins out. For example, studying harder to get into a good school may mean less time spent with friends. And the families of low- to moderate-income students may face a host of other problems, like volatile incomes, food scarcity, car breakdowns, and a range of other shocks (Barr, 2009) that could place demands on students' attention in the present and leave little energy for thinking about the future.

Behavioral economics suggests some promising ways we can help a student's present self make prudent decisions for his or her future self and resist the all-too-natural tendency to make impulsive, reactive or pleasure-seeking decisions. One creative strategy is to trigger different representations of the future to improve outcomes. A group of researchers nudged adults to delay gratification by showing them computer-generated images of their older selves, which frowned when subjects planned to save less for retirement and smiled when subjects planned to save more. The subjects who saw images of their projected future selves planned to save more for retirement (Hershfield et al., 2011). In many respects, visualizing concrete details about the future is similar to the act of creating concrete goals, expectations and plans. By having specific, actionable goals, students can make their future seem nearer and more relevant.

## Behavioral Insight: What comes to mind easily has great influence

The last behavioral principle we'll share, related to postsecondary preparation, is about our tendency to perceive the probability of an occurrence as being higher if it comes to mind more easily (Tversky & Kahneman, 1973). Here's a test:

**What is more likely: a shark attack or drowning in a swimming pool?**
**Which name is the more common girls' name in the US: Angelina or Beulah?**

The answers often elude people. Media coverage of fantastic events—such as plane crashes, shark attacks and natural disasters—is disproportionately high compared to their likelihood (Riddle, 2010). Also, if a famous person has a unique name, such as Angelina Jolie, people can overestimate the prevalence of that name because it is easier to recall. The phenomenon is called the availability bias. In short, it's when people misestimate the likelihood of a range of incidents, sometimes due to heavy media exposure. The implication for students is that media can skew their perceptions of what's normal or likely in the adult world, often with significant consequences for decision making.

As an example, the media can influence how students perceive career options. Youth are regularly exposed to vivid stories of success in sports and entertainment. As a result, careers that don't necessarily require postsecondary education can be disproportionately salient options. These perceptions are significant because students' future goals can influence their current behaviors. One study found that students who had post-college career goals for which college was necessary (such as being a doctor, lawyer, or businessperson) tended to have higher GPAs over time than students with goals that did not require college (such as being a sports star, singer, or designer). This was the case even when controlling for GPAs at the beginning of the study. In a related experiment, researchers found that students encouraged to have career goals requiring college were more likely to turn in extra credit, which is a promising sign of academic effort (Destin & Oyserman, 2010)."

The idea that these career options, which are influenced by the availability of media images, influence not only future thinking but also students' current behaviors might sound discouraging. However, what it also implies is that students' goals for their adult lives can also influence their current behaviors. There are a variety of ways practitioners and policymakers could potentially leverage this insight to combat the misconceptions and biases so detrimental to postsecondary preparation.

Initiatives such as Take Your Child to Work Day attempt to expose students at a young age to the world of work and different career options. Unfortunately, the students most in need of this type of exposure may have the least access to it. Schools and administrators can help overcome this barrier by scheduling "career tours" and other educational field trips that provide students with a vivid, memorable experience of what different career paths for them could be like. Teachers leading these trips can help students feel that the jobs and environments they witness are indeed viable options for them. They can accomplish this by evoking identities conducive to that goal ("Look! This accountant grew up in this area!"), or by connecting the job to class lessons ("Every day, this nurse uses the math formula you just learned! You've learned an important skill for being a nurse!").

# Current Initiative: Student Savings Accounts

## How might policymakers and practitioners change students' and families' expectations about postsecondary education?

Certain groups of students (e.g., low-income, minority or first-generation students) may have low expectations of themselves and their ability to attend a postsecondary program despite high aspirations to attend. In one study, although 90 percent of students from low-income families aspired to attend college, only 54 percent actually expected to attend college (Elliott, 2009). In several instances, these low expectations may be based on inaccurate perceptions that become self-fulfilling prophecies. For example, even though low-income students would likely pay less than their higher-income peers of the same academic ability, they are more likely to decide not to pursue postsecondary education or to pursue a less competitive program because of costs (Hoxby & Avery, 2012). The consequence is that the groups of students that financial resources are meant to support often do not take advantage of those resources and often do not realize their full potential in a postsecondary program.

A class of savings accounts and engagement strategies designated specifically for students and children (what we loosely call "Student Savings Accounts," or SSAs, in order to refer to Children's Development Accounts and College Savings Accounts) have become increasingly popular over the last decade as a way to increase postsecondary attendance and completion rates. Although these accounts are in one sense meant to be savings vehicles, much of an SSA's effectiveness may lie in its ability to signal or reinforce expectations that a student will attend a postsecondary institution (Elliott, 2009).


Source: Hoxby and Avery, 2012; Paving the Way

Most SSA efforts currently in the field use match incentives as a way to drive savings behavior. Although these efforts have varying account structures and features, they rely on a common assumption that financial incentives, typically in the form of a seed deposit or a simple match scheme (e.g., 1:1), will generate enthusiasm for the account, create a sense of co-investment, and promote habitual saving. While programs are generating balances for families who might not have otherwise saved for postsecondary education, they tend to be extremely costly and do not appear to be increasing savings rates significantly. Across several studies on matched savings accounts, a 25 percent match is consistently associated with just a three to six percentage point increase in savings program participation, and matches are often associated with no change or even a decrease in contribution rates (Madrian, 2012). Also, by emphasizing savings behavior, these programs don't maximize the key behavioral insight: the account is a vehicle for creating higher expectations for postsecondary education.

We think there are strategic ways to craft the account's design in a way that channels the behavioral insights we've been discussing into desirable outcomes. These strategies leverage the behavioral power of expectation and are low cost to execute. Here is a sampling:

- **Prime Useful Identities:** Efforts to communicate about the savings account can evoke identities conducive to postsecondary education attainment. Program administrators can set up the account in the student's name, enable students to make deposits, and use marketing materials and progress reports to keep the account—as well as the expectation that the student is "meant to" go to a postsecondary institution—top of mind. Communications materials could appeal to students' identities as emerging independent adults with increasing amounts of control over their lives and aspirations. Also, parents may exert more effort to save for their children than for themselves, so evoking the identity of "a loving parent" may help improve savings behaviors. Materials could also convey that other parents and students in a community with which the recipient identifies are saving and planning for postsecondary education.

- **Make the Future Vivid:** Communications materials can offer more than information about an SSA; they can include images and vivid descriptions of student life at the postsecondary level, different lifestyles after postsecondary education, and other relevant aspects of the future. Helping students and their families visualize the future in more concrete detail can help it appear nearer. By including small, manageable steps to take in the present and by including clear information about financial aid options, materials can also help stave off anxieties about the future that could lead to defensive behaviors.

- **Planning Prompts:** Materials can also incorporate planning tools, such as simple yet concrete action steps. For example, having individuals write down the date and time of a planned action has increased both voter turnout (Nickerson & Rogers, 2010) and vaccination rates for influenza (Milkman et al., 2011). Simply asking parents or students to write down the specific date and time that they will complete a postsecondary preparation activity, from making a savings deposit to researching schools on the internet, is a very low-cost way to increase the likelihood that these tasks are completed.

- **Make Various Career Options Top of Mind:** Communications offer numerous opportunities to educate parents and students about career options while a particularly relevant factor—money—is especially top of mind. The way researchers encouraged students to consider college-related careers in one study was by showing average salaries for a variety of careers, highlighting that college-related careers dominated the top income categories (Destin & Oyserman, 2010). Since the costs of postsecondary education are associated with concrete numbers while the benefits often remain abstract, communications can offer clear, specific examples of the returns to investing in postsecondary education.

- **Add "Want" Components:** Many parents—especially lower-income parents—may have a range of financial responsibilities to worry about. While they may have the best intentions, saving for postsecondary education may cause anxiety because it is just another thing that parents should be doing but may struggle with. Programs could add a "want" component, such as using gamification techniques or introducing a raffle (a key strategy of the widely successful "Save to Win" initiative) (Doorways to Dreams Fund, 2012), so that saving in the account does not feel like a chore or a New Year's Resolution.

While the above list is far from exhaustive, the common theme is that a regular awareness of the account and a useful interpretation of its significance are important for a SSA's effectiveness. A program that focused solely on getting parents to save more might have an effect but only indirectly; the key is that students think of themselves as the types of people who pursue postsecondary education and that they develop corresponding expectations for postsecondary education. ■

# 3.2. Outcomes during the Transition to Postsecondary Education

What follows the long and formative postsecondary preparation phase is a stage that we term the "transition to postsecondary education." This stage consists of many activities and choices that are critical for students' selection of a postsecondary institution and also their successful transition to it. For many, it takes place during the last year or two of high school, or when young adults complete their GED.

For others, it occurs later in life, when adults consider their postsecondary options after a hiatus from education. Regardless of when the transition occurs, the work includes searching for schools and programs, applying for admission and financial aid, and selecting an institution. It also includes the steps required to matriculate, a point worth noting since a significantly large number of students fail to matriculate after being accepted.

Making a successful transition to a postsecondary institution requires a dizzying number of steps for students. In addition to doing the academic work needed to graduate from high school or get a GED, students must apply to schools, apply for financial aid, and formally accept an offer by making a deposit and then registering or matriculating. Many additional steps are completely dependent on personal circumstances. For example, students may need to take (or possibly re-take) standardized tests. They may weigh their financial aid options and re-apply to schools if the financial support they receive isn't adequate. They may need to arrange for childcare, create a school-compatible work schedule, or find

ways to cover expenses if they don't have sufficient financial aid. If students are leaving their community for school, they may need to apply for housing and make travel and moving arrangements, possibly for the first time. The list goes on, and the variations are numerous.

What is notable is not just the sheer volume or the complexity of the decisions but also the weight of the decisions. Several of the decisions students make during this period are quick or one-time choices, are usually driven by hard deadlines and can have a lasting impact on later outcomes. For instance, whether to attend school, where to attend school and whether to apply for financial aid are some of the highest-impact decisions a person may make in his or her lifetime. Behavioral approaches are particularly well suited for facilitating these kinds of decisions. The faulty planning and other barriers to task completion that are so common to students during this transitional time are a ripe area for behavioral design.

## Behavioral Insight: Hassles and inconveniences are more than just annoying

During this transitional stage, hassle plays a starring role in undermining students' intentions to act. In the financial aid example we discussed earlier, we hypothesized that the hassle of the long form and frustration with the process could trigger a dangerous cycle of procrastination. When the hassles were addressed and targeted assistance was provided, people followed through. This is a great example of a high-impact decision point and of the ways in which looking at the situation through a behavioral lens can yield better outcomes.

Another example is warranted since these small, situational factors impede action in significant ways we tend to underestimate. Consider a classic study by Leventhal, Singer, and Jones (1965) that demonstrates the principle and also the implications for program design. Yale seniors were warned about tetanus and the importance of getting inoculated. However, only 3 percent of students who received only this information actually got a shot. Contrast this with the 28 percent uptake among students who received information, a campus map with the infirmary circled, a list of times when immunizations were available and a prompt to think about a convenient appointment time. These seniors may have already known how to get to the infirmary or had access to the same campus map. However, having the map at the right time made the information salient, reduced the hassle of looking for its exact location, or reduced the thinking required to get there. Similarly, prompting students to think about a workable appointment time reduced the possibility that they'd fail to follow through due to the inconvenience. These simple planning tools increased the probability of uptake nine-fold. They addressed hassles that common sense would suggest wouldn't matter at all but that actually did prevent students from making good decisions and following through on their plans. The example is instructive for postsecondary education since there are several steps during the transition from high school where hassle factors can frustrate efforts, delay action, or otherwise cause students to fall off track.

While awareness of these hassles is vital, it's the streamlining of tasks, or making them easier and more convenient, that can improve behaviors dramatically. For example, if federal loans do not cover a student's full cost of attendance, a student may need to borrow from multiple sources to secure adequate resources for school. The loan programs may have different eligibility criteria and application procedures, and these hassles may be contributing to the students most in need of the aid bypassing it or failing to access the

maximum amount. In fact, many students end up applying only for private loans, even though they qualify for federal loans that would save them hundreds or thousands of dollars in the long run (Rube, 2003). Policymakers could help curb this trend by making the federal application process more streamlined, and counselors could help by providing well-timed, targeted assistance that includes simple plan making. The solution may involve providing process information, tools and resources to which students already have access, akin to providing a map to the infirmary.

## Behavioral Insight: How we're swayed by reference points

Even when students and their parents have access to all of the information they need in order to make a good decision, they may still exhibit fallibility in the decision-making process. One reason is that people's decisions are often influenced or anchored by reference points, which impact the ways we evaluate unknown information and consider our options. When we look at financial decision making, for example, we see these principles at work. An employee's saving in a 401k plan can be influenced by the suggested contribution amount (Madrian & Shea, 2000). Likewise, the asking price of a house may significantly influence how much a person is willing to pay for it (Thaler & Sunstein, 2009, p.23-34). These scenarios reveal that subtle changes in the way a decision is framed or how reference points are constructed can change the way we think about a situation and, consequently, alter our behavior.

We can see some powerful examples of reference points and their influence in the college application process. In one study, a major educational testing company changed the number of free test reports it allowed students to send to prospective schools from three to four (Pallais, 2009). This small change dramatically increased the range of schools to which students applied. When faced with an uncertain situation (e.g., "How many schools should I apply to?") students will defer to the status quo and will be swayed by the reference points in front of them. The consequences can be significant. Pallais (2009) estimated that sending just one additional score report could increase the future earnings of a low-income student by over $6,000.

*"The way information is framed or presented can have a significant impact on [students'] decision making."*

Misconceptions about the costs of postsecondary education, which often discourage students from applying, can also be understood through this lens. Students tend to overestimate the cost of college, even when they think they have a grasp of what postsecondary education actually costs. One group of people surveyed overestimated tuition prices by 212 percent for four-year institutions and by 180 percent for two-year institutions, despite 56 percent reporting that they knew a lot about college costs (Ikenberry & Hartle, 1998, as cited in Scott-Clayton, 2012). Students are likely influenced by the tuition sticker price of the most expensive private institutions (what is salient in the media) rather than the net costs that may include healthy financial aid packages (Scott-Clayton, 2012). These inaccurate cost estimates, fueled by the way costs are framed, can be hugely disempowering.

The way information is framed or presented can have a significant impact on decision making. There is no neutral way for a choice to be framed; the way that information is presented will influence how families perceive their options even if there is no specific intent or thought put into it. Therefore, every decision about the search, application, and choice process for postsecondary institutions and financing options offers an opportunity for program designers and policymakers to consider how the presentation of materials is influencing decision making. For example, materials about different schools can highlight estimated net costs per income level instead of total costs, which would anchor families on numbers closer to the actual cost of attendance. Alternatively, redefining an anchor point by changing the number of schools to which students are advised to apply could shape students' expectations and behaviors related to postsecondary education.

## Behavioral Insight: A limited capacity for attention

We all forget things from time to time—even very important things. We have a limited capacity for attention and often focus on what is most salient, or what stands out relative to the many details passing through our minds. Unfortunately, what stands out in our minds is not always the most important or beneficial detail for us to focus on. This impairs our ability to make well-informed decisions. Also, prospective memory failure, or forgetting to take an action that we intend to perform, may be due to remembering at the wrong time, when we are unable to complete the action.

Since there is a long series of steps that students must follow in order to apply to postsecondary institutions, apply for aid and matriculate, there are many points at which limited attention can undermine students' plans. Especially during students' senior year, which can be an exciting and distracting time, students have a lot on their mind other than their future education and how to finance it. For example, many seniors are at the peak of their high school sports or extracurricular careers right around the time when applications for schools, scholarships, and financial aid are due. Students can forget to complete even the most important tasks when distracted by immediate needs and obligations.

First-generation and low-income students may not have the kinds of reminder systems in place that are available to other students. Not only are counselors often overworked and less available specifically in schools serving low-income populations (Johnson, Rochkind, Ott, & DuPont, 2009), but also students whose parents did not attend postsecondary institutions may not understand the application process or have a sense of when the deadlines are. Therefore, the same limited attention that affects all people can lead students with fewer supports and reminders to be particularly susceptible to missing important deadlines.

Behavioral economics offers examples of how the power of simple reminders can help overcome these attention limitations and memory failures. Text message reminders have been used to increase savings rates (Karlan, McConnell, Mullainathan, & Zinman, 2010), sunscreen use (Armstrong et al., (2009), and voting (Dale & Strauss, 2009), which represent high-stakes activities for such a low-cost and easy-to-execute intervention. Importantly, text message reminders encouraged savings even when higher interest rates did not (Karlan et al., 2010).

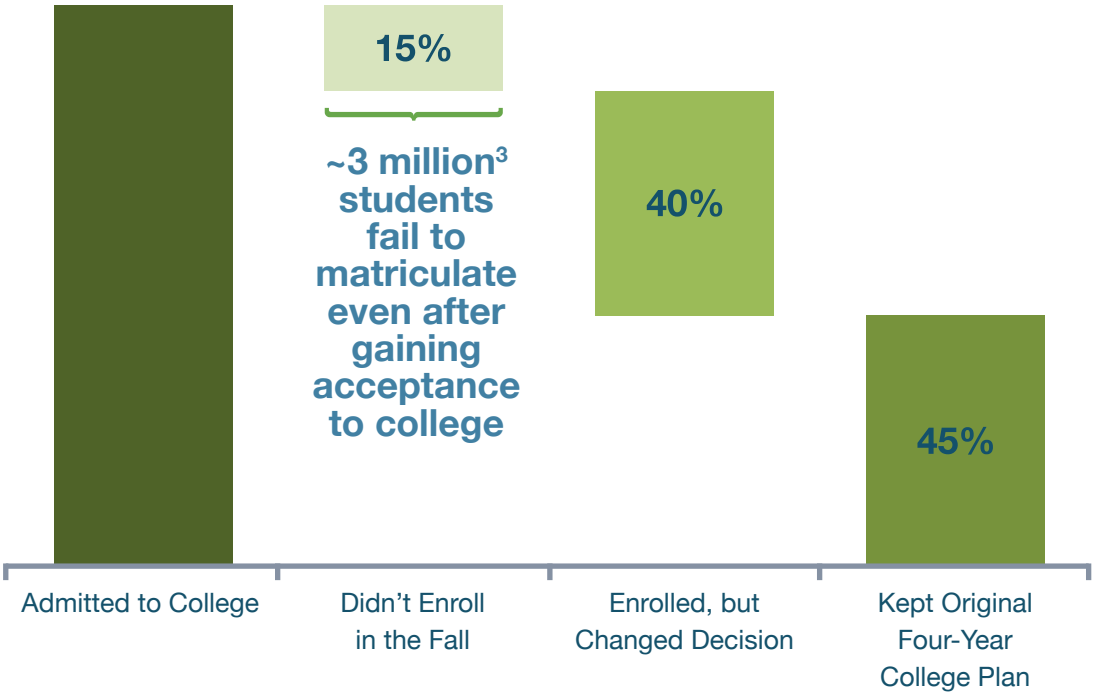
Similarly, well-timed reminder systems can help students remember important dates so that they don't miss important deadlines. Even when a task is large and complex, reminders can be spaced to encourage timely completion of intermediate steps. For example, students could be reminded that they should have completed the program search process by late September, any recommendation requests by late October, and applications by late November. Although reminder systems are simple interventions, they can have a significant impact on behavior when timed and messaged well.

## Current Initiative: Support through the "forgotten summer"

**Problem: How might practitioners and policymakers increase the postsecondary enrollment of students who have completed secondary education and aspire to attend a postsecondary institution?**

Many students have trouble staying on track during the summer after graduating from high school. A recent study estimated that 10 to 15 percent of college-accepted high school students (on average) did not enroll the fall after high school. The range was as high as 40 percent for community college students. This problem of "summer melt," or plans falling apart during the summer months between high school and a postsecondary program, is more pronounced among lower-income students but is also surprisingly prevalent among higher-income students (Castleman & Page, forthcoming).

Many students may feel a new sense of freedom after graduating from high school and desire not to think about school at all. However, there are still a number of steps that students need to take in order to ensure




3. Estimate based on 2010 enrollment figures (21 million students); NEA Higher Education Journal, NCES

a smooth transition to postsecondary education. Some may simply forget about necessary steps (like forms) or may struggle with unfamiliar processes during a time when there are minimal supports available. Other students may be intentionally putting off enrollment decisions, making multiple enrollment deposits once they're admitted so they can put off the decision until the summer (Hossler, Schmit, & Vesper, 1999; Brown, 2010). The consequence is that students may fall off track during the summer and fail to matriculate at a postsecondary institution in the fall, in spite of getting so close.

"Summer melt" is a significant problem that presents an opportunity for behavioral design. The 10 to 15 percent represents students who have already made the herculean effort of applying to school and have succeeded in gaining acceptance. Among lower-income students, it also means they've submitted their FAFSA. If a relatively low-cost behavioral intervention is possible, the cost-effectiveness of such an approach, versus trying to get more students prepared and ready to apply, would be astounding.

## Behavioral Design: Support and reminders during the "forgotten summer"

To tackle these issues, a group of researchers decided to test the effect of offering support to students during this "forgotten summer". They took advantage of the summer as a time when counselors are in rarely abundant supply to randomly assign students to a group that did or did not receive summer counseling. Support included reviewing aid packages, lobbying for additional aid, accessing students' college homepages, completing required paperwork, and supporting students with social and emotional issues. These targeted and well-timed services led to significant increases in enrollment and were approximately four times as cost-effective as grant aid (Castleman, Arnold, & Wartman, 2012).

Since the counseling was multifaceted, we cannot discern the exact interventions with the greatest impact; however, the parallels to the support provided by H&R Block tax professionals are worth noting. The summer counseling did not just give students information about negotiating and evaluating aid packages, completing paperwork, or accessing the college website; rather, counselors supported students by showing them how to make it through intimidating paperwork and processes. Also, the intervention was particularly effective for low-income students who may not have as many supports or reminder systems already in place (such as an involved parent), corroborating the notion that dealing with hassle factors may have a particularly significant impact on those students who struggle most to transition to a postsecondary institution.

The researchers also conducted a similar experiment during the summer of 2012 but used a much lighter-touch intervention: they sent simple text messages to remind students of important dates, paperwork, and other tasks. While the effects on enrollment are still being analyzed, preliminary analysis suggests that the intervention, which cost only $7 per student, led to up to a seven percentage point increase in enrollment across different sites (Castleman & Page, 2013). This means that, among some populations, the intervention may have been as much as 11 times as cost-effective as the FAFSA assistance offered in the H&R Block experiment and as much as 722 times as cost-effective as Cal Grant A in increasing college enrollment (see "An Example: Financial Aid Access" section). Reminding students in a convenient way and at appropriate times can be a remarkably cost-effective way to help keep students on the path to postsecondary education attainment. ■

# 3.3. Postsecondary Completion Outcomes

We define postsecondary completion as all of the activities required for success after students have enrolled in their first semester. Once registered or matriculated, students must repeatedly enroll in classes, ideally with a course load that sets them up for timely completion of their program.

They must attend and progress through classes, schedule counseling sessions with academic advisors, arrange payments or financial aid, select a major or course of study, meet requirements for graduation, apply for internships and jobs, and so on. Many students have additional "life" decisions and tasks to juggle, such as balancing school with various work or family obligations.

This time period is often characterized by a great deal of unprecedented freedom, choice, and responsibility for students. Many of the decisions made in this stage directly influence economic prosperity after graduation. (For this paper, we will not explore behaviors after graduation in detail, even though they are also significant both for economic self-sufficiency and for signaling the value of postsecondary education to other community members.) We focus in this section on how some of the most common behavioral tendencies influencing students are particularly misaligned with the way the vast majority of postsecondary programs in the US are structured.

## Behavioral Insight: The role too much choice plays

Choice is most often viewed as a good thing; the more choice the better. Increasing options is considered a good way to make a product or service more attractive. But behavioral economics suggests that too much choice is cognitively taxing, and giving people too many choices may actually overwhelm them. For example, firms with more retirement savings options in their 401(k) plans tend to have significantly fewer employees sign up for a 401(k) at all (Iyengar, Huberman, & Jiang, 2004). Providing more options can actually make it less likely that any of them is chosen. We also know that not just the number of choices but also how options and complex choices are presented can have a big effect on people's actions.

After high school, students are inundated with tradeoff decisions that may have previously been dictated or more structured by their school. Students have to choose between hundreds of majors, careers, courses, schedules, and electives, often with minimal guidance or counseling. Many times, students end up making choices that aren't in their best interest. For example, they may choose courses that don't allow them to progress through their program at an efficient pace or don't prepare them well for the workforce.

Let's assume a student, a life sciences major, is creating his course schedule for the semester and has no idea which courses are best suited for him. At many schools and at community colleges in particular, hundreds or thousands of classes can be offered at various times to appeal to the preferences, time constraints and abilities of students (see chart on page 33).

A few things might happen. The student may get overwhelmed and dabble too extensively in courses that don't count towards the specific requirements of his major. He may be biased by other features of the choice, such as how early in the morning classes are scheduled or what his friends are doing. Worse, the student may just put off choosing until it is too late for that semester, which means he won't be enrolled. And once students "take a break from college," they may not come back to complete their program. Regardless of the scenario, the consequences of the choice are real, since progressing through one's major has a huge effect on financial aid, the total cost of college, and a student's ability to graduate. This is just one of many types of decisions that students are tasked with making, despite being poorly equipped to sift through the myriad options available to them.

*"...we can simplify the architecture of students' decision making without necessarily reducing the options available to them"*

There are, however, ways that we can simplify the architecture of students' decision making without necessarily reducing the options available to them. For example, automatically enrolling students in certain courses, such as core and major requirements, while still allowing them to change their schedule with counselor approval, could nudge them to progress through a program at a reasonable pace. Another choice tool could ask students to put in their existing "life" schedule (when they already have commitments to work, take care of a child, etc.) and the tool could provide an optimized course schedule based on their major. Otherwise, students might put off tough decisions because no single course schedule is clearly the best, or they may even enroll inadvertently in courses that do not meet requirements. While there is a

limit to how much structuring choice can positively affect student outcomes, and too much structure may restrict useful options, a lack of structure currently predominates.

## BIOLOGY

| | | | | | |
|---|---|---|---|---|---|
| BIO-100-01 | GENERAL BIOLOGY | TH | 9:00 AM | 11:45 AM | 3 |
| BIO-100-02 | GENERAL BIOLOGY | F | 6:00 PM | 8:45 PM | 3 |
| BIO-100-04 | GENERAL BIOLOGY | S | 9:00 AM | 11:45 AM | 3 |
| BIO-100-06 | GENERAL BIOLOGY | SU | 9:00 AM | 11:45 AM | 3 |
| BIO-107-01 | HUMAN BIOLOGY | F | 9:00 AM | 11:45 AM | 4 |
| BIO-107-01 | HUMAN BIOLOGY | F | 12:00 PM | 2:45 PM | 4 |
| BIO-107-03 | HUMAN BIOLOGY | S | 9:00 AM | 11:45 AM | 4 |
| BIO-107-03 | HUMAN BIOLOGY | S | 1:00 PM | 3:45 PM | 4 |
| BIO-111-01 | ANATOMY AND PHYSIOLOGY I | W | 9:00 AM | 11:45 AM | 4 |
| BIO-111-01 | ANATOMY AND PHYSIOLOGY I | M | 9:00 AM | 11:45 AM | 4 |
| BIO-111-02 | ANATOMY AND PHYSIOLOGY I | W | 12:00 PM | 2:45 PM | 4 |
| BIO-111-02 | ANATOMY AND PHYSIOLOGY I | M | 12:00 PM | 2:45 PM | 4 |
| BIO-111-03 | ANATOMY AND PHYSIOLOGY I | TH | 4:00 PM | 6:45 PM | 4 |
| BIO-111-03 | ANATOMY AND PHYSIOLOGY I | T | 4:00 PM | 6:45 PM | 4 |
| BIO-111-05 | ANATOMY AND PHYSIOLOGY I | T | 3:00 PM | 5:45 PM | 4 |
| BIO-111-05 | ANATOMY AND PHYSIOLOGY I | F | 3:00 PM | 5:45 PM | 4 |
| BIO-111-06 | ANATOMY AND PHYSIOLOGY I | M | 6:00 PM | 8:45 PM | 4 |
| BIO-111-06 | ANATOMY AND PHYSIOLOGY I | W | 6:00 PM | 8:45 PM | 4 |
| BIO-111-07 | ANATOMY AND PHYSIOLOGY I | T | 6:00 PM | 8:45 PM | 4 |
| BIO-111-07 | ANATOMY AND PHYSIOLOGY I | TH | 6:00 PM | 8:45 PM | 4 |
| BIO-111-09 | ANATOMY AND PHYSIOLOGY I | T | 6:00 PM | 8:45 PM | 4 |
| BIO-111-09 | ANATOMY AND PHYSIOLOGY I | TH | 6:00 PM | 8:45 PM | 4 |
| BIO-111-11 | ANATOMY AND PHYSIOLOGY I | S | 9:00 AM | 11:45 AM | 4 |
| BIO-111-11 | ANATOMY AND PHYSIOLOGY I | S | 1:00 PM | 3:45 PM | 4 |
| BIO-111-12 | ANATOMY AND PHYSIOLOGY I | SU | 1:00 PM | 3:45 PM | 4 |
| BIO-111-12 | ANATOMY AND PHYSIOLOGY I | SU | 9:00 AM | 11:45 AM | 4 |
| BIO-111-HYB01 | ANATOMY AND PHYSIOLOGY I | M | 3:00 PM | 5:45 PM | 4 |
| BIO-111-HYB02 | ANATOMY AND PHYSIOLOGY I | M | 1:00 PM | 3:45 PM | 4 |
| BIO-115-01 | PRINCIPLES OF BIOLOGY I | T | 1:00 PM | 3:45 PM | 4 |
| BIO-115-01 | PRINCIPLES OF BIOLOGY I | TH | 1:00 PM | 3:45 PM | 4 |
| BIO-115-02 | PRINCIPLES OF BIOLOGY I | W | 6:00 PM | 8:45 PM | 4 |
| BIO-115-02 | PRINCIPLES OF BIOLOGY I | M | 6:00 PM | 8:45 PM | 4 |
| BIO-116-01 | PRINCIPLES OF BIOLOGY II | TH | 7:00 PM | 9:45 PM | 4 |
| BIO-116-01 | PRINCIPLES OF BIOLOGY II | T | 7:00 PM | 9:45 PM | 4 |
| BIO-120-01 | HUMAN SEXUAL BIOLOGY | F | 6:00 PM | 8:45 PM | 3 |
| BIO-201-01 | PRACTICAL NUTRITION | F | 8:00 AM | 10:45 AM | 3 |
| BIO-201-02 | PRACTICAL NUTRITION | F | 12:00 PM | 2:45 PM | 3 |
| BIO-201-03 | PRACTICAL NUTRITION | F | 3:00 PM | 5:45 PM | 3 |
| BIO-201-06 | PRACTICAL NUTRITION | S | 9:00 AM | 11:45 AM | 3 |
| BIO-211-01 | ANATOMY AND PHYSIOLOGY II | T | 9:00 AM | 11:45 AM | 4 |
| BIO-211-01 | ANATOMY AND PHYSIOLOGY II | TH | 9:00 AM | 11:45 AM | 4 |

The above is a small part of a course catalog at a community college in the US. There are multiple courses similar to each other and multiple time slots available for the same course (e.g., 20 different options available for Anatomy and Physiology I).

Changes to the structure of a program are often not trivial and can involve tradeoffs. For example, administrators who are already busy may be discouraged by the amount of work involved in arranging a default class schedule for every student. However, advances in technology can help make the addition of structure to existing programs more feasible. Computer programs can automatically enroll students of various different majors in core requirements while accommodating scheduling restrictions due to major requirements. There are many options currently available to explore improvements in postsecondary program structure, and there may be even more as the education technology marketplace and online teaching continue to become more sophisticated.

## Behavior Insight: How mental bandwidth gets depleted

Just as muscles get fatigued with exercise, our mental resources get taxed with use. "Mental bandwidth" is a limited resource (Laury & Mullainathan, 2010), yet we use it for activities that are imperative for good decision making: problem-solving, reasoning, planning, sustaining attention, and exerting self-control (Chan, Shum, Toulopoulou, & Chen, 2008). And when our mental resources are used heavily, they don't function well (Laury & Mullainathan, 2010). These limitations impact our ability to stay on task, remain focused, and make choices in our best interest, even when the stakes are high.

The constraints on mental bandwidth aren't contained in any one aspect of life. Rather, strain in one area of life can spill over to other areas that may seem completely unrelated. For example, people tend to choose chocolate cake over fruit salad immediately after performing difficult cognitive tasks (Shiv & Fedorkhin, 1999). Likewise, air traffic controllers observed in a study were more likely to exhibit anger towards their spouses on high-traffic days (Repetti, 2006). This spillover happens because our ability to self-regulate is most tenuous when we're mentally exhausted (Baumeister & Heatherton, 2009).

The texture of students' lives is such that mental depletion can take a significant toll on academic performance. Students in postsecondary programs are making constant tradeoff decisions during a period in life when many have unprecedented freedom and lack of structure. Students' days can be unstructured or widely variable from one day to the next, which can allow for a significant degree of freedom in how they plan their day but also makes it difficult to schedule adequate time for studying, to juggle responsibilities, and to resist temptations. Although it might seem counterintuitive, the lack of structure can actually exacerbate students' cognitive strain. While freedom and choice may appeal to many students on the surface, the constant juggling can contribute to mental fatigue.

Perhaps the most potent distraction is the financial juggling that many students endure. Almost 74 percent of students work an average of 25.5 hours per week while enrolled in a postsecondary program (Dundes & Marx, 2006-2007), a work load that can exert a heavy tax on the very mental capacities needed to succeed in a postsecondary program. Likewise, budgeting and cash management issues can consume a good portion of students' mental bandwidth. For example, students who fund regular expenses with financial aid often receive a significant portion of their funding in one chunk at the beginning of the semester or school year, requiring careful budgeting and restraint in order to ensure that funds aren't depleted too quickly. Underestimating the costs of books or supplies, succumbing to temptations like expensive clothing or take-out meals during midterms or neglecting to include slack in one's budget for unexpected costs such as a

car breakdown can lead to severe cash shortages later in the semester. The cognitive strain, caused by this financial juggling and the tradeoff decisions that are made to compensate for the scarcity of resources, can spill over into day-to-day academic decision making and undermine students' efforts to complete school.

Given these limits on mental capacity, postsecondary institutions and financial support programs can potentially improve outcomes by adding structure and reducing the number of decisions that students have to make. For example, requiring students to attend a mandatory "study session" of a few hours a week would remove at least some of the tradeoff decisions students must make about when to study. Providing structured and consistent support that fosters decision making and keeps students focused on strategies that facilitate self-regulation can help reduce students' mental burdens.

## A Current Initiative: New Community College

**Problem: How might practitioners and policy makers improve completion rates among enrolled postsecondary students?**

There are many opportunities to apply behavioral insights at the postsecondary level; however, the most significant misalignment between behavioral insights and common practices at higher education institutions is a lack of structure for students and an overabundance of choice and freedom (Scott-Clayton, 2011). This dynamic leads to countless ways, both small and large, that enrolled students can fail to progress through to completion.

Moreover, students who fail to complete often experience challenges balancing school and work during their first year of higher education (Johnson et al., 2009), suggesting that this is an opportune time for added structure and facilitated decision making.

*"[First year of higher education] is an opportune time for added structure and facilitated decision making."*

Postsecondary institutions may resist efforts to change the structure of their programs. They may not want to coddle students, since their goal is to prepare students to navigate the "real" world. They may be philosophically opposed to structuring students' choices, since flexibility is often a cornerstone of their policies. They may experience resistance from competing interest groups, for whom a change in structure would add other costs, either real or perceived. However, the lack of structure and prevalence of choice in most programs is more extreme than what many students will face in their work life. Also, there is a range of ways we can better attune programs to the nuances of student behavior, from using behavioral insights to overhaul a program's design to gently tweaking the architecture of key choices. Regardless of the approach, the importance of structured decision making can't be underestimated if the goal is getting more students to complete.

## Behavioral Design: Structured Programs

The design of New York City's New Community College accounts for behavioral insights by offering an intensively structured program and by providing "choice architecture" that can potentially help students succeed in school. The college has features rarely seen among community colleges (Scott-Clayton, 2011; Christ, 2012):

- It offers only a few but very well-structured options for degree attainment.
- Students have several core requirements, such as a mandatory summer orientation and preparatory classes.
- Full-time enrollment is required during the first year.
- There's a common core curriculum.
- Meetings with advisers and study groups are required.

The rigid structure defines a student's choice set and sets expectations for what is needed to succeed. Rather than leaving students to their own devices to navigate big tradeoff decisions, the New Community College makes requirements for success very clear and assists students in completing or even requires them to complete certain steps.

One risk that schools take when restricting options is a negative reaction from students. For example, common curricula leave less room for electives and variation, which are viewed as enhancing or deepening a student's overall academic experience. Generally, people tend to prefer having more options even though they may be more likely to make a choice and like their choice when they have fewer options (Iyengar & Lepper, 2000). However, students may also realize that there are benefits to more structure and less freedom and choice. Some initial reactions from prospective students of the New Community College suggest some disappointment at the lack of freedom, but there's also some acknowledgement that it may be for the best. One 17-year-old said, "[The information session] was a little bit of a shock for me, because I was looking for something with a little more freedom. But it might be good for me to have something more structured, so I really get my associate's and don't just waste my time" (Perez-Peña, 2012). Community college administrators will be watching the New Community College closely as its first cohort of students progresses through the program and serves as a large, observational study on the effect of structure on postsecondary outcomes. ■

# 4. Testing and Evaluation on the Path to Scale and Sustainability

The behavioral illustrations shared here, which include examples from everyday life and cases that demonstrate social impact, offer a window into the many ways that behavioral economics can inform program design to improve postsecondary outcomes. Systematic behavioral diagnosis of problems is the best tool we have to design strategies that work.

However, diagnosis can be imperfect since, just like in medicine, interacting and shifting situational influences can be hard to tease out. As a result, pilot testing behavioral interventions, iterating designs, and then further testing is extremely important in order to prove an effect. This testing enables us to define the costs and benefits of the intervention so that we can lay the foundation for effective, scalable and sustainable solutions.

Even well-designed behavioral interventions do not always work exactly as planned. An intervention's effectiveness may vary with minor details in its structure, such as whether or not a homework reminder is sent on Friday or Monday. Rigorous testing enables us to identify how effective the intervention actually is, and randomization techniques can help identify not only which interventions are effective but also which have the most significant impact.

Experimentation can even reveal findings that surveys and focus groups do not. When participants respond to survey questions, such as why they did or did not participate in a program, they are prone to confirmation bias, or a tendency to fabricate rational yet often inaccurate explanations of events that align

with their pre-existing beliefs (Oswald & Grosjean, 2004). Without randomization and a control group, we wouldn't be able to isolate the behavioral interventions and know with any confidence whether or not the intervention is having an impact and how much of an impact. Conversely, experimentation can reveal the ineffectiveness of designs that few would otherwise question. For example, an identity-based intervention in postsecondary education could affect a person in different and unanticipated ways, either beneficial or detrimental to postsecondary outcomes, and testing is the only way to find out with certainty what those effects will be in a given context.

Finally, experimentation can help build an evidence base for a field so that programs and policies can inform each other. Although there's been progress in recent years, many postsecondary programs still have little or unreliable evidence. In the absence of this data, programs often try the same types of interventions over and over again without any proof that their methods are effective. Program administrators and policymakers may skip the testing and evaluation step because it may be operationally complex to execute and is therefore expensive to conduct. However, evaluation is often significantly less expensive than running an ineffective program. The field of postsecondary education will advance much more rapidly if stakeholders invest in evaluation and share their learnings. ■

# 5. Conclusion: Implications for a Behavioral Agenda in the Postsecondary Arena

This white paper is an introduction to the emerging practice of behavioral design and an attempt to show how behavioral insights can help us design better postsecondary programs. We focus on the role of behavioral diagnosis in developing the right solutions to pressing problems in postsecondary education. We offer illustrations of behavioral insights that are impacting students' choices every day.

We also provide examples of how these insights can be leveraged to shape program design in a way that improves students' decision making and can improve outcomes related to college access, matriculation and completion. We pay particular attention to how behavioral interventions can benefit low- and moderate-income families who may be most in need of support but the least likely to take it up. We conclude by describing the systematic way in which we approach behavioral program design, stressing the importance of testing and evaluation and the iterative way in which we refine our behavioral designs to maximize their impact while contributing to an evidence base.

We acknowledge that there are many significant, pressing issues we have not addressed, such as teacher quality, remedial education, linkages with workforce development, or disconnected youth. We also recognize that applied behavioral economics is not a panacea. It simply offers a set of high-leverage tools, which may be especially important to consider when funds are tight and which are often easier to implement than alternatives.

Developing high-impact designs in the postsecondary domain will require engagement between behavioral design experts (like ideas42) and leaders who are developing or administering the programs, services and systems that serve students. The role of these leaders is to engage with behavioral experts about problem definition, help facilitate the detail-gathering that is so essential for problem diagnosis and the identification of bottlenecks, bring to light operational and other constraints, and provide the platform for behavioral design and testing. Leaders may come from a variety of sectors (nonprofit, private or public), and the intervention may involve the redesign or tweaking of a particular service or the design of a completely new program or product.

This paper is a call for us to think from a behavioral perspective. It is meant to introduce the field to the potential of the behavioral viewpoint, share the promise of behavioral design in postsecondary education, and generate new thinking about old problems. But it is also a call to action. Its purpose is to ignite discussion about problems and opportunities in a way that leads to partnerships and promising behavioral design projects that can make fast and significant improvements in postsecondary outcomes over the course of the next few years. We look forward to the lively conversations and hard work that follows.■

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