

RETHINKING STUDENT MOTIVATION

*Why understanding the 'job' is
crucial for improving education*

AN EDUCATION WHITE PAPER

Clayton M. Christensen
Harvard Business School

Michael B. Horn
Innosight Institute

Curtis W. Johnson
Education | Evolving



September 2010 | E-WP-001
www.innosightinstitute.org

RETHINKING STUDENT MOTIVATION

*Why understanding the ‘job’ is
crucial for improving education*

*This white paper is adapted from the forthcoming second edition of *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns* (McGraw-Hill, September 2010) by Clayton M. Christensen, Michael B. Horn, and Curtis W. Johnson.*

In most school reform efforts the focus is on the schools. The question we typically ask is, “Why aren’t schools performing as they should?” Perhaps a key reason we’re so dissatisfied with the state of public K-12 education is that we’ve been asking the wrong question. If we asked instead, “Why aren’t students learning?” perhaps we might see things that others have yet to perceive. After all, it’s the children’s performance that should concern us. The performance of a school is little more than the sum of the performance of its students.

In *Disrupting Class* we explained that prosperity is a bittersweet reward. Poverty often serves as an extrinsic motivator for some students, as it causes them to endure monolithic, batch teaching of subjects like math and science. When prosperity has removed this source of motivation, the solution must be to make learning intrinsically motivating. Student-centric learning will play a key role in addressing this challenge. The purpose of this paper is to draw upon another model from our research on innovation to dive more deeply into students’ motivation to learn. If children are motivated to learn and if we enable each one to learn effectively, we will have an education system with a great performance record. As the late educator Jack Frymier often said, “If the kids want to learn, we couldn’t stop ’em. If they don’t, we can’t make ’em.”

The challenge of student motivation is a pervasive and increasingly problematic barrier to improving students’ learning. Whether it is manifest as inattentive ennui on the faces of affluent suburban students, attendance and drop-out problems in inner-city schools, or simply “forgotten” homework assignments, making students excited to learn is a challenge that most have not cracked. Teachers and parents “offer” education, but many students are not buying what is being offered.¹ A few outlier parents, teachers, and schools actually seem to have solved the motivation problem, but in most of these instances their solutions haven’t yet seemed to scale—as if there is a secret sauce in student motivation that defies codification.

Most marketers
behave as if the
world is structured
by product
category or by
customer category.

Motivating customers to buy in other contexts

The problem of motivating customers to buy what companies are trying to sell them is not a problem that is unique to education. Over 75 percent of all new products and services that established companies launch into their markets fail. Year after year those that champion and fund the development of these products are convinced that if the products are “good,” demand for them will materialize. If demand is insufficient, a typical solution is to make the product even better, in the belief that the reason customers were not motivated to buy the original version is that it wasn’t yet good enough. Rarely do subsequent improvements right a sinking ship, however. Why is it so hard to crack the puzzle of customer motivation?

A model from our research on innovation goes a long way toward explaining why the inability to anticipate customer motivation correctly is such a common cause of failure in innovation in general. And specifically, this model can help us see the danger in our tendency to blame students’ poor performance on a simple lack of motivation, without questioning whether waning motivation might be the result of deeper causal factors. As we did in *Disrupting Class*, we first describe and illustrate the model in the context of corporate innovation, and then examine the challenge of student motivation through the lens of this model.

The importance of getting segmentation right

The way that companies choose to define market segments influences which products they develop, determines the features they incorporate in those products, defines who the customer is and isn’t, and shapes how they take the products to market. Segmentation schemes define who is and is not framed as a competitor and how large specific market opportunities are believed to be. In other words, the market segmentation scheme that companies adopt is a decision of vast consequence. Yet many managers give little thought to whether their segments-in-use—which is essentially their theory of the structure of their markets—are leading their marketing efforts in the right direction.

Most marketers behave as if the world is structured by product category or by customer category. Auto companies, for example, typically segment their markets by product category: there are sub-compacts, compacts, mid-sized, and full-sized sedans; minivans, SUVs, luxury cars, sport cars, light trucks, and many more. They can tell you how big each segment is, how fast it is growing, and who has what market share. Other companies (and these are not mutually exclusive) frame

their market's structure in terms of customer characteristics by using demographic attributes like age, gender, marital status, and income level. Business-to-business (B2B) enterprises typically use corporate demographics like small, medium, and large enterprises or industry “verticals” to define the structure of their markets. The reason these choices are salient to innovation is that they define the targets, in terms of customers and competitors, for the innovation. Slicing markets along these dimensions makes sense because when you're inside the company looking out on the market, this indeed is how it appears to be structured. What is more, when data is collected about the size of markets, it comes structured by product and customer category because that is the easiest way to collect and analyze data.

Segmentation schemes such as these are static, in that customers' behaviors change far more often than their demographics do. The segment between the ages of 18–34 is often used in consumer marketing, for example. But it lasts 17 years—during which time attitudes, behaviors, and needs change dramatically. Demographic data cannot explain why a man takes a date to a movie on one night, but orders in pizza to watch a DVD from Netflix the next.

The reason why it often seems difficult to explain whether a customer within a given demographic category will buy a new product from within a given product category is that from the customers' perspective, the market is not structured by product and customer category. Rather, customers just find themselves needing to get things done. Jobs arise in their lives that demand resolution, and they hire products or services to help them do these jobs. Marketers who seek to develop products and services that their customers will buy predictably need to see the world through the eyes of those customers. This means that they need to understand the basic job that their customers are confronting and the results they need to achieve for which their products might be hired as a solution. In other words, the job, and not the customer or the product, should be the fundamental element of a marketer's understanding.

Most of the “home runs” of marketing history occurred when people sensed the fundamental job that customers were trying to do—and then found a way to help more people do it more effectively, conveniently, and affordably. The strike-outs and singles of marketing history, in contrast, generally have been the result of developing products with better features and functions than other products in the same category, or of attempting to decipher what the average customer in a demographic wants.

Demographic data cannot explain why a man takes a date to a movie one night, but orders in pizza to watch a DVD from Netflix the next.

A job is the fundamental problem a customer needs to resolve in a given situation. To illustrate what a job is and how much clearer the path to successful innovation can be when marketers understand the job, we'll offer illustrations from the fast food and photography industries where companies traditionally have segmented their markets by product and customer categories, but would benefit greatly if they segmented by job.

Hiring milkshakes

A fast-food restaurant some time ago resolved to improve sales of its milkshakes.² Its marketers first defined the market segment by product—milkshakes—and then refined it further by profiling the customer most likely to buy milkshakes. Next they invited people who fit this profile to evaluate whether making the shakes thicker, cheaper, or chunkier would satisfy them better. The panelists gave clear feedback, but the consequent improvements to the product had no impact on sales.

A new researcher then spent a long day in a restaurant to understand the jobs that customers were trying to get done when they “hired” a milkshake. He chronicled what each was wearing, when they bought their milkshake, what other products the customers purchased, whether they were alone or with a group, and whether they consumed it on the premises or drove off with it. He was surprised to find that nearly half of all milkshakes were purchased in the early morning. These customers almost always were alone; they did not buy anything else; and they promptly got in their cars and drove off with their milkshakes.

To understand what job these early-morning customers were hiring the milkshake to do, the researcher returned the next morning and confronted these customers as they left the restaurant, milkshake in hand, and essentially asked (in language that they would understand), “Excuse me, but could you please tell me what job you were trying to do when you came here to hire that milkshake?” As they struggled to answer, he helped them by asking, “Think about a recent time when you were in the same situation, needing to get the same job done, but you didn’t come here to hire a milkshake. What did you hire?” Most of them, it turned out, bought it to do a similar job: They faced a long, boring commute and needed something to keep that extra hand busy and to make the commute more interesting. They weren’t yet hungry, but knew that they’d be hungry by 10 a.m.; they wanted to consume something now that would stave off hunger until noon. And they faced constraints: They were in a hurry, they were wearing work clothes, and they had (at most) one free hand.

In response to the researcher's query about what other products they hired to do this job, the customers realized that sometimes they bought bagels to do the job. But they were dry and tasteless. Spreading cream cheese on the bagels while driving caused serious problems. Sometimes these commuters bought a banana. But it didn't last long enough to solve the boring-commute problem, and they were starving by 10 a.m. Doughnuts were too sticky and made the steering wheel gooey. Candy bars made them feel guilty, and coffee didn't fill them up. The milkshake, it turned out, did the job better than any of these competitors. It took people 20 minutes to suck the viscous milkshake through the thin straw, which gave them something to do with that extra hand while they drove. They had no idea what the milkshake's ingredients were, but that didn't matter. All they knew was that at 10 a.m. on days when they had hired a milkshake, they didn't feel hungry. It didn't matter that it wasn't a healthy food because becoming healthy wasn't the job they were hiring the milkshake to do. And all of these characteristics fit cleanly in their cup-holder.

The researcher observed that, at other times of the day, parents often bought milkshakes, in addition to a complete meal, for their children. What job were the parents trying to do? They were exhausted from repeatedly having to say "No" to their kids. They hired milkshakes as an innocuous way to placate their children and feel like loving parents. The researchers observed that the milkshakes didn't do this job well though. They saw parents waiting impatiently after they had finished their own meal while their children struggled to suck the thick milkshake up through the thin straw.

Customers were hiring milkshakes for two very different jobs. But when marketers had asked a busy father who needs a time-consuming milkshake in the morning (and something very different later in the day) what attributes of the milkshake they should improve upon, and when his response was averaged with those of others in the same demographic segment, it led to a one-size-fits-none product that didn't do well either of the jobs it was being hired to do.

Once they understood the jobs that the customers were trying to do, however, it became clear how to improve the milkshake to do the job even better, and which improvements were irrelevant. How could they better tackle the boring morning commute job? Make the shake even thicker so that it would last longer. Swirl in tiny chunks of fruit so that the drivers would occasionally suck chunks into their mouths, which would add a dimension of unpredictability and anticipation to their monotonous morning routine. Just as important, they could move the dispensing

But when the father's response was averaged with those in the same demographic, it led to a one-size-fits-none product that did neither job well.

It is easy for
marketers to
become confused
by thinking that just
because people
should want to do
something, they
actually will do it.

machine in front of the counter and sell customers a prepaid swipe card so that they could dash in, gas up and go, without getting stuck in the drive-through lane. Addressing the other job-to-be-done would entail a very different product, of course.

Hiring photos

It is easy for marketers to become confused by thinking that just because people *should* want to do something, they actually *will* do it. Accurately predicting what customers actually will buy and use typically requires that we watch what they do because we often are misled when we succumb to this logic of should do it equals will do it.

Recall, for illustration, what life was like before digital photography. We took our roll of film to a store to be developed. Most of us chose to get double prints because the second one was almost free, and in case one of the prints turned out to be especially good we wanted to be able to send that extra one to Grandma. When you picked the prints up, what did you do with them? You flipped through them, and then put them back in the envelope, which you then put in a box or drawer. The overwhelming majority of all photos that have ever been taken were only looked at once. Only the most conscientious people took the trouble to mount the most memorable photos in an album to look at again. The rest of us knew that we should keep albums, but we just didn't—or we planned to start tomorrow. If you watched what people did, it was very different from what they knew they should do or said they wanted to do.

When digital cameras emerged to disrupt film photography, companies offered several value propositions to camera users based on what the technology was capable of offering and what their market research said customers wanted. One was, "You can click 'attach,' and email photos to friends and family whenever something interesting or important happens!" Another was, "If you'll just take the time to learn how to upload these photos, you can edit the red eye out of all those pictures that you used to look at only once!" A third proposition was, "You can keep all those images in this online scrap book that makes it easy to sort, search, and print from your gallery of thousands of photos!"

If you watch what most digital camera users actually do, a large majority of them have not learned to use photo editing software and have not created online photo albums. Why? These just aren't things that were priorities in their lives before the new technology arrived. The feature that most digital camera users actually use is

the facility for emailing images to family and friends or for posting photos on social networking sites. Why? Because these uses represent the same job that they were trying to do when they ordered double prints and then mailed one of the copies to grandma. An innovation that makes it easier and cheaper for people to do what they're trying to do is what is called a killer app(lication). An innovation that makes it easier and cheaper for people to do what they're not trying to do, in contrast, faces an up-hill death march through knee-deep mud before it fails.

People who don't want to do something that they know they should do have marvelously inventive abilities to ignore that advice. They resolve to start tomorrow or conclude that it's OK if they just don't do it. We rationalize the rules to comply with our desired behavior. Marketers in every industry must confront this reality: Consumers demonstrate daily the propensity to prioritize what they want to accomplish, not what they are told they should accomplish. College students should be motivated to expand their learning by delving into the online expansions of their textbooks. Drivers should obey speed limits for their own good. But they don't. It's human behavior, not the behavior of diabetics, smokers, and the obese with which we're dealing. Most of us are frightfully guilty of believing that we don't need to follow certain rules that are demonstrably important for everyone else to follow.

One of the reasons why the jobs-to-be-done concept is proving to be powerful in directing successful innovation within so many companies is that it gets directly at the cause of action. The fact that someone is in a particular demographic segment is often correlated with a propensity to buy certain products and not others. But what causes the purchase is that the customer has a job that needs to be done.³

What jobs are students trying to do?

We believe that a core reason why so many students languish unmotivated in school or don't come to class at all is that education isn't a job that they are trying to do. Education is something they might choose to hire to do the job—but it isn't the job. While we continue our research to understand this crucial question, we hypothesize that there are two core jobs that most students try to do every day: They want to feel successful and make progress, and they want to have fun with friends.⁴ Just as the milkshake competes against bananas, doughnuts, bagels, candy bars, and coffee for the morning commute job, schools compete against gang membership as something that students can hire to experience success and to have fun with friends; dropping out of school, buying a car, and cruising around town; joining

Education isn't a job
students are trying
to do. Their jobs are:

- Feel successful
 - Have fun with
friends
-

Schools compete

against:

- Athletics
 - Video games
 - Gangs
 - Employment
-

athletic teams—whether they are school or AAU-sponsored or are of the pick-up or sandlot variety; and video games. Others languish in boredom and do not experience success because they can learn much faster than the pace at which their teachers are setting class.

How do schools fare against these competitors as something that students can hire to be successful and have fun with friends? Miserably in many cases. The primary mechanisms in most schools for doing these jobs are explicitly separated from education. Activities such as athletic teams and musical and dramatic arts performance groups, which are mechanisms for feeling successful and making progress, are “extracurricular” activities rather than “curricular” ones, which speaks volumes. The key events embedded within our curricula that could help students feel successful—examinations—occur every few weeks. Feedback on whether students actually succeeded is often delayed by another one to two weeks while the teacher does the grading. And when the grades are handed out, the privilege of feeling successful is reserved only for the best students. By design, the rest experience failure.

We often conclude that the top students succeed because they are motivated, and the rest languish in the middle or the bottom of the pack because they aren't. The jobs-to-be-done perspective leads us to a different conclusion. All students are likely equally motivated to feel successful. For some, school is a viable candidate to hire for this job. This group likely includes those whose parents provide a clear link between academic achievement and career success; those whose intellectual capacities were honed through repeated, sophisticated verbal interaction with adults before the age of three; and those whose way of learning or passions matches that of their particular teachers. The students who do not hire school to feel successful are not unmotivated to feel successful. They just don't or can't feel successful at school—often it makes them feel like failures. School does not motivate intrinsically. For these students, schools just can't compete against other vehicles that they can hire for feeling success. Motivation operates through a different causal mechanism than most of us have assumed traditionally.⁵

Integrating to do the job

One of our most important observations in the jobs-to-be-done dimension of our innovation research has been that most companies are not integrated correctly, given the job for which customers are hiring their product. When a company understands

the job its customers need to do and then integrates its activities to do the job as well as possible, it typically develops strengths that competitors struggle to copy.

There are three levels in the architecture of a job. At the highest level is the job itself—the fundamental result that the customer needs to achieve. Every job has a functional, a social, and an emotional dimension—and the importance of these elements of the mix varies from job to job. For example, “I need to feel like I belong to an elite, exclusive group” is a job for which products with luxury brands such as Gucci and Versace are hired. In this case, the functional dimension of the job isn’t nearly as important as its social and emotional dimensions. In contrast, the jobs for which a delivery truck might be hired are dominated by functional requirements.

The second level in the architecture is comprised of all of the experiences in purchasing and using the product or service that its vendor must provide so that they sum up to “nailing” the job perfectly.

Once innovators understand what these experiences must be, they can then implement the third level in the architecture of a job: They can integrate properly by knitting together the technologies, ergonomic features, packaging, training, support and service capacities, distribution and retailing systems, and branding and advertising strategies that are required to provide each of the experiences necessary to do the job perfectly.

If you don’t understand what the customer is trying to accomplish, you don’t know what experiences in purchase and use you need to provide. And if you don’t understand what these necessary experiences are, you are likely to integrate the elements of your enterprise in ways that are irrelevant to what your customers are trying to accomplish. By illustration, consider what the understanding of the “morning commute” job that the customers were hiring milkshakes to do for them enabled the fast-food restaurant to do: 1) they improved the product in ways that otherwise would have been counterintuitive (making it more viscous; stirring in tiny chunks of fruit); 2) they could move the dispensing machine in front of the counter so that customers could serve themselves; and 3) they could equip the machine with a prepaid “swipe card” system so that customers could dash in, “gas up,” and go, without ever having to wait in a line. Each element of this system had existed in the restaurant. But integrating them together in this way was an insight that could only have emerged through understanding the job that customers were hiring the milkshake to do. Providing the experiences in purchasing and use to do the job of placating children (the other job that customers hired the milkshake to do) would entail a very different sort of integration.

If you don't understand what the customer is trying to accomplish, you don't know what experiences in purchase and use you need to provide.

In our research, companies in industries that seem to be notorious for high prices and poor customer service almost always aren't integrated to help customers get a specific job done. We suspect that executives of the companies that comprise these industries think that they are integrated, in that each element that is required for customers to buy and use their product or service exists. But the elements are not knit together in a way that provides the experiences required to do the job perfectly.

Consider colleges and universities. Their major lines of organizational structure are typically drawn by academic field: departments of mathematics, physics, French, economics, classics, and so on. The reason for structuring universities in academic departments is to facilitate the faculty's ability to interact with others who share common interests and expertise, and to help them publish in specialized academic journals so that they can achieve tenure. As a result of these structures, college education for most students entails repeated bouncing back and forth in a cumbersome way between departments and administration to get their education. And colleges incur extraordinary overhead expenses to deal with the fact that few of them are organized in ways to optimize the flow of students through the requisite experiences.⁶

In contrast, when we see companies that have reputations for delighting their customers with their quality and cost, the root cause of this ability generally is that they view their market's structure—intentionally or unintentionally—in terms of jobs-to-be-done. This enables them to integrate, or tightly couple, the relevant functions in their companies to provide the experiences in purchase and use that sum up to nailing different jobs perfectly.

As an example, IKEA is organized to do a particular job very well: “We need to furnish this apartment today!” Consequently it is integrated very differently from other low-priced furniture retailers. IKEA engages its own designers directly and exclusively to create knockdown lightweight furniture kits that customers can retrieve from the warehouse, take home, and assemble themselves, without having to wait for delivery professionals. It designs pieces of furniture that are explicitly meant to be temporary, not heirlooms. IKEA offers childcare for its customers because unfettered concentration on furniture purchases is an importance experience; and it positions an affordable cafeteria at the midpoint of the winding journey through the store so that customers can refuel for the second half. Although IKEA has been slowly rolling out across America for 30 years; even though its “formula” is open for all to inspect; and despite the fact that its owner is the third wealthiest man in

the world, nobody has copied IKEA. Nobody. The reason? We believe that because other furniture retailers regard their market as structured by product category and price point, they don't even see the need to integrate differently; and they therefore rarely are hired to do this job.

If IKEA executives someday were to decide that they wanted to diversify into other jobs, they would need to set up separate business units in order to achieve the integrated structure required to provide the experiences appropriate to those jobs. For instance, there is another job in the furniture realm which might be characterized as, "For 20 years we've been living with the furniture we bought in graduate school. It's time that we furnished our house with nice furniture that we'll spend the rest of our lives with—heirlooms that we can give to our children." Helping customers do this job would entail a very different type of integration that would have to be achieved within a different business unit.

Schools are integrated incorrectly

Just as the companies that offer poor service at high prices do, K-12 educators have, by and large, framed the structure of their world by product categories and by demographic—the subjects taught in the curriculum and the students of different ages sorted by grade level, for example. Because of this framing, instead of viewing their task as enabling their students to do the job that they're trying to do, educators operate as if the delivery of education (their product) is their objective. The activities in schools generally are not integrated in ways to help students be successful every day—even though doing so is crucial to having schools nail their own jobs, which are increasingly to educate every student adequately and have each one graduate from high school.⁷

Do you recall how, in response to customer feedback in our milkshake story, the company kept improving the features of the product and yet had no impact on sales? It wasn't until the restaurant understood what the "morning commute" job was that it became clear that they had been improving the milkshake along dimensions of performance that were irrelevant to the job for which it was being hired. Understanding the job helped them see that they weren't just selling a product. They needed to provide the experiences required to do the job perfectly.

When unmotivated student "customers" aren't buying what the schools are offering—as evidenced by where they are spending their time and attention—school administrators and teachers often have worked extraordinarily hard to improve the

Educators operate as if the delivery of education (their product) is their objective. School activities are generally not integrated in ways to help students be successful.

With computer-based learning, achievement can be integrated with the delivery of content in ways that help students feel successful while they learn.

features of their products, in the hopes that more interesting or compelling lessons, textbooks, and media might resolve the problem of student motivation. They are solving the wrong problem.

What might correct integration, that helps students feel successful every day, look like? Some schools, like the Big Picture schools, follow a “project-based” learning strategy, in which students are organized into teams and then undertake meaningful projects that require them to master the reading, writing, math, science, and social science skills that the school wants them to learn. This integrates the delivery of curriculum with experiences that enable students to feel successful and have fun with their friends every day.⁸

One reason why we take an assertive position in *Disrupting Class* on the wisdom of using computer-based learning as the mechanism for achieving student-centric learning is that by the very nature of software, achievement can be integrated with the delivery of content in ways that help students feel successful while they learn, every day. Often this comes in the form of reviews or examinations that are built into the software, which require students to demonstrate mastery before they can move to the next body of material. Feedback can be delivered frequently and in bite-sized pieces, as necessary, to help each student feel successful. In traditional monolithic batch instruction, in contrast, examinations are offered every few weeks. Then, because this system is designed to categorize students as excellent, average and below average, it causes most students not to feel successful as they learn.⁹

There is mounting evidence that students’ learning is maximized when content is delivered “just above” their current capabilities—not too much of a stretch, and not too easy. Customization to the “just above” level for each student is much easier to achieve in software than in the current monolithic delivery model of most schools.¹⁰

Couch potatoes and jobs-to-be-done

An important implication of the jobs-to-be-done model of market structure is that a job can exist independently of a market for products or services that might be hired to do that job. When we see a customer not hiring anything to do a particular job, it does not necessarily mean that he or she does not have that job to do. Rather, it may simply mean that there is nothing available for hire.

Here is an example. One of the most publicized successes in the economic development of impoverished nations is Grameen Telecomm in Bangladesh, launched by Nobel laureate Muhammad Yunus. After building out a wireless infrastructure, the company loaned money to a carefully chosen woman in each

village so that she could buy a wireless telephone. Others in the village could then pay a fee to this “telecomm entrepreneur” in order to use her telephone.

One of the most common uses was by farmers who were ready to take their crops or animals to market. Prior to the Grameen phone, the farmers had to choose which town to go to without knowing in advance what was being paid in that town for their particular animals or crops. And when they arrived in that town, the buyer had all the pricing leverage because the buyer could decline to buy, while the farmer needed to sell. The Grameen phone enabled farmers to call to each town in their region before starting their journey, to learn where the best prices were being paid, and to lock in a price before they made the trip. The job—to know in advance of travel where the best prices were—had existed for centuries. But the market of services that could be hired to do this job did not exist until Yunus and his colleagues conceived of and implemented this service.

We hypothesize that the need to feel successful is a job that every child has. When children listlessly spend hours each day watching television, we do not believe that it is evidence that those particular children don’t have the “feel successful” job to do. Rather, we suspect that there just isn’t anything in their lives, given their circumstances or context, that they can hire to do the job. School might cause them to feel like failures; athletic team membership might similarly cause them to feel like failures; and so on. The fact that there is no “market” in those particular homes for academic, athletic, or work activities whose “wages” include feelings of success and accomplishment does not mean that the job doesn’t exist in the lives of those children.¹¹

Scaling a solution to this problem

We noted at the outset that certain teachers in certain schools, by dint of their charismatic teaching style or unique abilities to teach in an engaging way, seem to have “cracked” the motivation problem—but that their solutions or methods seem not to scale well. Do the findings summarized in this paper scale any more readily?

We believe that there are two things that can and must scale. First, the principle must scale—and it can. We must start by correcting the notion that nearly all teachers and administrators hold, which is that education itself is the job. It is not. Rather, it is one of many competing activities, most of which are in non-educational categories, that students can hire to do the jobs of feeling successful and having fun with friends. The principle of correct integration can also be taught—the notion that what must be learned can be knit together with experiences that help students

Software that has been designed with success embedded within it scales readily and economically. The intuition of teachers who have the instinct to conquer motivation does not.

experience success every day. We have cited above different examples that have done this knitting. There are many, many other examples of which we are not yet aware.

Second, we have observed repeatedly in our studies of innovation that in the beginning stages of an industry, the basic technical problems typically can only be addressed by experts who draw upon their deepest experience and intuition to solve the problems inherent in designing products or services. In the earliest days of the synthetic fibers industry, for example, there were just a few chemists in the world who could create the molecules that comprise the fibers known as nylon, polyester, acetate, and Kevlar—and DuPont employed most of them. There was a similarly small and elite cadre of engineers with the intuition to design mainframe computers—and IBM employed most of them. The same could be said for the early stages of most industries. One result of this expertise-intensiveness was that the initial products were expensive and inaccessible to many people. A second result was that nobody could play these games like DuPont and IBM—because intuition doesn't scale well.

In most of these industries such as synthetic fibers and computers, the technical problems that once had required the intuition of the world's best have now become so well understood that the science underlying their design and manufacture has become rules-based, which has enabled people with much less training and expertise to design and deliver products whose quality is better and whose price is much lower than the experts could achieve in the early years. Their products became affordable, accessible, and consistently high in quality not because the expertise of DuPont's scientists and IBM's engineers was replicated over and over. It was achieved by commoditizing their expertise, so that many people could do it.

A great advantage in creating software that has been designed with success embedded within it is that it scales readily and economically. The intuition of those elite teachers who have the instinct to conquer motivation does not. Online learning changes a teacher's job, and, as it improves, it will enable far more people to do what only the expert intuitive teachers could do before.

As hundreds of thousands of teachers and parents develop methods for knitting success and education together in the years ahead; and as many thousands of them make their solutions available to others in the facilitated networks that we described in *Disrupting Class*, we believe that this integrated solution of success and education will be found to have scaled magnificently against the challenge of student motivation.

Notes

- ¹ We use the term “buying” in this paragraph in the general sense of giving up something in order to get another thing. Students themselves don’t pay for their education. But they certainly give up time and energy, and incur opportunity costs that to them are significant, in order to get what schools offer. It is in this sense that we consider students to be customers of our schools. They may or may not “buy” what the schools are offering. And although society is the ultimate customer of public schools, if students do not buy what is being offered, schools will likely not accomplish what society is demanding of them either; those expectations—or jobs—are discussed in Chapter 2 of *Disrupting Class*.
- ² The descriptions of the product and company in this example have been disguised.
- ³ We describe and discuss the importance of this distinction between causation and correlation in *Disrupting Class*.
- ⁴ That “seeing their friends” is a principal motivation for kids to come to school has become accepted wisdom among educators. But we thank one of Clayton Christensen’s former students, Gunnar Counselman, for the profound reminder to us that the job-to-be-done model would be useful in framing the challenge of motivation.

In addition, Bob Moesta—one of the original creators of the Job to be Done framework and an honorary fellow of Innosight Institute—is conducting ongoing research to understand further the jobs that children—and others connected to the education system—have to do in their lives. Moesta’s early work confirms that the jobs referenced in this paper are indeed among those that children are trying to do.

Furthermore, when we use the phrase “want to feel successful,” we do not mean the kind of surface level idea of success that constitutes praising a child no matter how she performed on a given activity under the mistaken idea that building “self-esteem” in this vein is a good idea. Instead we mean true success, where the student in fact accomplishes and achieves something real and makes progress. A discussion of the perils of the former can be found in George Will’s discussion of Po Bronson and Ashley Merryman’s book, *NutureShock: New Thinking About Children*. See George F. Will, “How to ruin a child: Too much esteem, too little sleep,” *Washington Post*, March 4, 2010, <http://www.washingtonpost.com/wp-dyn/content/article/2010/03/03/AR2010030303075.html>.

Further evidence that feeling successful is a primary job that students—and all people—have emerges from the field of neuroscience. As Daniel T. Willingham writes in Chapter 1 of his book *Why Don’t Students Like School? A Cognitive Scientist Answers Questions About How the Mind Works and What It Means for the Classroom* (San Francisco: Jossey-Bass, 2009):

Solving problems brings pleasure. When I say “problem solving” in this book, I mean any cognitive work that succeeds; it might be understanding a difficult passage of prose, planning a garden, or sizing up an investment opportunity. There is a sense of satisfaction, of fulfillment, in successful thinking. In the last ten years neuroscientists have discovered that there is overlap between the brain areas and chemicals that are important in learning and those that are important in the brain’s natural reward system. ... Many neuroscientists suspect that the two systems are related. Rats in a maze learn better when rewarded with cheese. When you solve a problem, your brain may reward itself with a small dose of dopamine, a naturally occurring chemical that is important to the brain’s pleasure system. Neuroscientists know that dopamine is important in both systems—learning and pleasure—but haven’t yet worked out the explicit tie between them. Even though the neurochemistry is not completely understood, it seems undeniable that people take pleasure in solving problems. ... It’s notable too that the pleasure is in the solving of the problem. Working on a problem with no sense that you’re making progress is not pleasurable.

- ⁵ Similar to our approach in *Disrupting Class*, this assertion has not been inductively derived from large-n studies of students. Rather, it is drawn primarily from looking at the education industry

through the lens of one of our theories on how successful innovation works. We invite other scholars and foundations to explore and test these ideas, and pledge our support to their efforts.

⁶ Important exceptions are Western Governors University, an online university, and Brigham Young University-Idaho. The leaders of these schools, whose mission is to help students learn rather than to facilitate faculty research, are designing models that optimize the learning flow for students. For certain research universities the traditional departmental structure is more appropriate. Findings that breakthrough insights typically occur at the intersection of disciplines, however, suggest that the departmental structure doesn't optimize the productivity of research, either. For a rich discussion of the history behind the university's structure and its evolution—as well as more information about Western Governors and BYU-Idaho, see Anya Kamenetz's *DIY U: Edupunks, Edupreneurs, and the Coming Transformation of Higher Education* (White River Junction, Vermont: Chelsea Green Publishing, 2010).

⁷ As mentioned above, we discuss the jobs that society has historically hired schools to do in Chapter 2 of *Disrupting Class*. An interesting case study emerges from this perspective. College Summit is a national non-profit organization that helps high schools raise their college enrollment rates by building a college-going culture. College Summit does this by attacking the jobs that high school students have so that schools can in turn accomplish their jobs. Its founder, J.B. Schramm, has observed that most high schools try to lower their drop-out rate by encouraging students to “not drop out.” The problem with this approach, however, is that “not dropping out of high school” is not a job that students have to get done. In high school their jobs are much more about gaining access to a better future—either through attending college or getting a job. When the schools with which College Summit works change their approach to help the students solve their jobs—by being relevant to helping them attend college or gaining access to a better job—dramatically higher numbers of students stay in school and graduate. As a result, schools accomplish their job, too, which is to raise their graduation rate.

This illustrates a point that plays out in many industries. When offering a product or service that will rely on the adoption and use of multiple stakeholders, for the product to take off, it must fulfill the jobs of all the stakeholders or else it will not work for any of the stakeholders.

Another interesting case history to consider along these lines is that of the beginning of Wireless Generation. Many companies have offered products or services that they could see would improve student learning—if only teachers would just use them correctly! Many an education technology company has struggled with this—and few have lived to tell about the struggles. Wireless Generation had such a product with its mobile educational assessment solutions, but unlike most education technology companies, its product became a success. What was the difference? Just as in the story about digital photos, most education technology companies are not offering a product that helps a teacher do more efficiently what they are already trying to do and prioritizing, and instead have the result of layering “just one more thing” on top of a teacher's already busy work day. By contrast, Wireless Generation's handheld device helps its target teachers do more easily something that they were already doing—and it allows them to do it with greater ease so it improves and simplifies their lives rather than further complicates them.

⁸ Dennis Littky, the co-founder of the Big Picture schools, also makes the point that another key element for students is to feel important and intrinsically valued. As a result, for them to hire schools, the work often needs to be meaningful and valuable to the larger community beyond the school. Extracurricular activities do this well in many cases, but regular schoolwork often does not.

⁹ We suspect that some of our readers will want to remind us that Asia is filled with classrooms filled with attentive students sitting row-by-row in large classrooms, being lectured to in a monolithic manner, and yet seeming to be highly motivated. We would remind readers that poverty is still a powerful extrinsic motivator in many of these countries and explains much of this, as discussed in the Introduction of *Disrupting Class*.

¹⁰ This idea relates closely to the notion of the Zone of Proximal Development, which was developed by Lev Vygotsky, a Soviet psychologist. See the Wikipedia entry, “Zone of proximal development,”

for a high-level summary of the concept at http://en.wikipedia.org/wiki/Zone_of_proximal_development#cite_note-4, accessed April 7, 2010, 1:43 p.m. An often cited definition of this term is, “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers” as written in his own work (see L.S. Vygotsky: *Mind in Society: Development of Higher Psychological Processes* (Cambridge: Harvard, 1978), p. 86.).

In addition, another way to talk about this concept can be found in an excerpt from Harvard Professor Paul Peterson’s engaging new book, *Saving Schools: From Horace Mann to Virtual Learning*, in which Peterson quotes Willingham from his book *Why Don’t Students Like School?* Peterson says: “Cognitive scientist Daniel Willingham provides an explanation for the power of customized learning. “Working on problems that are of the right level of difficulty is rewarding, but working on problems that are too easy or too difficult is unpleasant.” Paul E. Peterson, *Saving Schools: From Horace Mann to Virtual Learning* (Cambridge: Harvard, 2010) p. 253.

¹¹ As Terry Behrendt, the founder of the Learning Centers program in Wichita Public Schools, which offers an opportunity for drop-outs to earn high school diplomas and at-risk students to recover credits through the use of online learning, said in an Innosight Institute case study: “I have yet to meet a kid that did not want to succeed in their own way. Most of the time they just do not know how to succeed or what the next steps are.” Katherine Mackey, “Wichita Public Schools’ Learning Centers: Creating a new educational model to serve dropouts and at-risk students,” Innosight Institute, March 2010, p. 5.

About Innosight Institute

Innosight Institute, founded in May 2007, is a 501(c)(3) not-for-profit think tank whose mission is to apply Harvard Business School Professor Clayton Christensen's theories of disruptive innovation to develop and promote solutions to the most vexing problems in the social sector.

About Education | Evolving

Education | Evolving works to improve U.S. education by shifting the focus toward motivating students and teachers through creating radically different ways for young people to learn and for teachers to work. E|E has historically partnered closely with the development of the chartered school movement, and it currently works to promote innovation in learning environments.

About the authors



CLAYTON M. CHRISTENSEN is the Robert and Jane Cizik Professor of Business Administration at the Harvard Business School and is regarded as one of the world's foremost experts on innovation. He is author of the New York Times bestsellers *The Innovator's Dilemma* and *The Innovator's Solution*, and is a cofounder of Innosight Institute.



MICHAEL B. HORN is co-founder and Executive Director of Education of Innosight Institute, a non-profit think tank devoted to applying the theories of disruptive innovation to problems in the social sector. *Tech&Learning* magazine named Horn to its list of the 100 most important people in the creation and advancement of the use of technology in education.



CURTIS W. JOHNSON is a writer and consultant. He is a partner with the Citistates Group; the managing partner of Education Evolving, a project of the Center for Policy Studies, originators of the chartered schools concept; and a former chief of staff to former governor Arne Carlson of Minnesota. He is coauthor of three books.

Copyright © 2010 by Innosight Institute, Inc.
All rights reserved.

www.innosightinstitute.org