K-12 Entrepreneurship: Slow Entry, Distant Exit

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From 32,000 feet on a recent flight, we declared the tangle of lights out the left window to be a "37." An hour later, the dense cluster by the river was a "54." When we landed, Google Earth revealed that we have gotten disturbingly good at this game: Little Rock (40 elementary schools) and Wichita (51 elementary schools).

We play this game because, as educational entrepreneurs, we are desperate for *scale*. We operate in a $500 billion market, but the dollars are scattered among 15,000 school districts, few of which are large enough to see from mid-air.

We also play this game to distract ourselves from the thought that, while we are flying over these districts, the vast sales forces of the big publishers are already on the ground in them, meeting the Deputy Superintendent at the Rotary Club, luring away the last few discretionary dollars she has.

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Our company, Wireless Generation, was founded in 2001. Our goal was to build mobile educational software that would give teachers new diagnostic insight and new capacity to adapt their teaching to precise student needs. In our most popular product, elementary teachers use our software to record, on a handheld computer, their students' reading and math progress. These *observational* assessments are the preferred approach for children who are not old enough to take standard tests, and they provide a more nuanced picture of student learning than multiple-choice. The data on the handheld computers are then "synced" to our website, where we offer reports that help teachers understand and address their students' needs, letters that give parents customized learning activities for the home and analytics that help districts provide instructional leadership.

We have grown to 250 people, serving more than 2.5 million K-6 students, including most of the K-3 classrooms in New York, Chicago, Miami, Houston, Washington, D.C. and more than a thousand smaller districts. We are considered a preliminary entrepreneurial success story, but we are not quite profitable yet, and we remain vulnerable to political funding shifts, to the various ways that the culture of education is slow to change, and to competition from "Big Edu" (the three dominant educational publishing companies).

Our perch above "start-up" and below "established player" might be a useful one from which to explore the barriers-to-entry that entrepreneurs face as they try to succeed in the educational marketplace, as well as to consider the barriers-to-exit that keep most educational ventures from reaching IPO or other impressive liquidity events. Without such exits, investors and entrepreneurs will be reluctant to invest in K-12, and entrepreneurship will not be a well-financed force for changing the education sector.

In this chapter, we will discuss several of the barriers-to-entry that our company and our colleagues in other education start-ups have encountered, will touch upon the barriers-to-exit that peer companies have faced (we are not interested in exiting anytime soon) and then will make a few suggestions about how schools and policymakers could begin to dismantle these barriers.

A Note on Tool Builder vs. School Builders

We should note that our perspective on educational entrepreneurship is that of a builder of tools, systems and services for schools. It will therefore differ in important ways from the entrepreneurs who start and run schools. School builders would not be interested in our airplane game – they usually work in limited geographic areas and, in most respects, hope to be left alone by the school district, whereas we tool builders tend to work nationally and need to work *with* the school districts. School builders can be considered successful when they have built one

successful school; tool builders need to demonstrate success in thousands of schools. School builders thrive in environments of decentralized local choice; tool builders thrive in environments of centralized leadership that can purchase our products at scale.

One irony of the current fashion in K-12 philanthropy is that the same entrepreneurs who made fortunes in other industries through highly centralized systems that crushed local variation – for instance, Wal-Mart, Microsoft, The Gap, and Netflix – tend to champion educational entrepreneurship in the form of local, decentralized, niche entities and are sometimes surprised to learn that their philanthropy can be counterproductive for our type of educational entrepreneur.

That is, Wal-mart and Microsoft dominate because they have the scale to make huge investments in innovation and improvement, and can standardize practices across vast organizations, thereby achieving economies of scale unavailable to smaller competitors. But when they turn to education, the Waltons, Gateses, and Fischers have been drawn to the decentralized niche players. A concrete example of this is that the NewSchools Venture Fund set out to build one fund to invest in school builders and another to invest in tool builders. The school builder fund has attracted more than $100 million in philanthropic dollars; the tool builder fund has not quite gotten off the ground.

In fairness to these philanthropists, though, this state of affairs may simply be a matter of where they are in a long-term strategy, since there is a growing focus among these philanthropists, and among the school builders, on scaling these start-up schools into larger networks of schools. The largest of these networks will soon achieve the scale of a small urban school district and will thereby become a viable customer for tool builders – the meeting of these two forms of entrepreneurship strikes us as a thrilling opportunity (as the New Schools Venture

Fund saw from the outset). We will discuss this further in the section about overcoming the barriers to entry.

Ten Barriers to Entry

There are no doubt many more than ten, but our goal was to speak from experience about barriers we have actually encountered as practicing entrepreneurs.

Barrier #1: The Education Sector Does Not Invest in Innovation

The macro-economic barriers constraining entrepreneurship in the education sector can be distilled down to three numbers:

1/100: Chris Whittle has noted that the annual public investment in healthcare R&D outstrips that of education by a ratio of 100 to 1: The National Institutes of Health's annual budget is $27 billion versus an "unpacked" Institute of Education Sciences R&D budget of $260 million.[i] While Big Pharma and the medical devices makers like to present themselves as engines of innovation and discovery, it turns out that the health sciences R&D climate in the US – and most of the breakthroughs – depend largely on *government* funding of innovation through the NIH and at universities. The public willingness to invest, at large scale, in educational innovation has not yet generated anything comparable.

3.5: Keeping the lights on and a teacher in every classroom consumes most of the annual money spent on education so that little is left over to generate or try new tools, techniques or approaches. Out of every dollar spent on education in 2005, only 3.5 cents was spent on materials, tools and services.[ii] Subtract the big mandatory purchases of textbooks and annual testing, and one is left with almost no free funds to deploy creatively. With class size reduction and teacher incentive pay ramping up around the country, the pressure on these budget lines

continues to increase, reducing the dollars available for investment in breakthrough tools and services.

1.8: The public school system spends roughly 1.8 percent of its annual operating budget on IT.[iii,iv] By "IT," we refer to hardware, software and related services, along with a generous 50 percent of the total spent on assessment (because some assessment is automated). In healthcare, the comparable investment is 4.1 percent of revenue. The construction sector spends 5.5 percent.[v] It is clear that the educational sector is not making a "competitive" effort to harness IT, a key engine for innovation and a key door through which entrepreneurs enter a sector. At the heart of the matter is that K-12 education, for the most part, does not *invest* in IT – it *spends* on IT, because parents and politicians want to see computers in classrooms. But IT for the sake of appearances rarely delivers any important educational benefits to schools, which in turn limits future willingness to invest, which in turn shrinks the supply side of things worth investing in.

Barriers 2 and 3: Oligopoly + Decentralization

These next two barriers need to be understood in concert: The existence of a "Big Edu" that dominates the national distribution channel in education combines with the extreme decentralization in education (the large number of small districts and the small number of large districts) to create converging barriers; only Big Edu has the resources to thrive on the vast national scale, while the local field is crowded with "lifestyle" businesses (retired teachers and principals hanging out shingles).

Last year, there was a consolidation within the oligopoly: Reed Elsevier decided to exit the K-12 education market. It sold Harcourt Assessment to Pearson, and the rest of Harcourt – including core and supplemental publishing – to Houghton Mifflin/Riverdeep. That leaves three major publishers controlling almost 85 percent of the K-12 textbook market.[vi] It is telling that

each of these three members of "Big Edu" has congealed around a core publishing business that is at least 125 years old.

The K-12 publishing industry can be visualized as a modified Pareto distribution with an unusually big head and an unusually long tail, but a slender mid-section. That is, there are an abundance of small companies off to the right, and there is Big Edu controlling most of the revenue in an usually big spike to the left, but there is not much of a middle. The big three, Pearson, McGraw-Hill, and Houghton-Mifflin/Riverdeep, command annual revenues in the billions.[vii] Scholastic's education division and two others are next with annual revenues in the high hundreds of millions. But then there are fewer than a dozen companies in the $100-250M range: Renaissance Learning, Cambium and Voyager. Follow the curve out to the right and you find fewer than you would expect in the $25-100M range (Wireless Generation is in this group), then there are an abundance of companies between $25M and $5M in revenue, and a few thousand at $5M and below, most of them still founder-run and serving a specific regional and subject-area niche.[viii]

This distribution may or may not be transparent to public sector customers, as the biggest players are aggregations of smaller players consolidated over time, often with retained brands (for example, "Saxon, a Harcourt Achieve Imprint" and "SRA/McGraw-Hill"). Sales forces, distribution and shipping and other functions are consolidated to support expansion and discover efficiencies, to develop up-sell and cross-sell opportunities and to provide more level earnings across buying cycles and even across pedagogical fashions.

One of the reasons for the continuing consolidation is that the market is expanding from core, or "basal" textbook purchases towards "supplemental" or "intervention" materials. The basal programs were developed to be a complete curriculum for a year or sequence of years, and

are purchased via an arcane, political "adoption" process in about half of the states, including Florida, Texas and California.[ix] But as assessment instrumentation has gotten better and easier to use, and as adequate yearly progress pressure has increased focus on students at all achievement levels, many schools and districts have turned to more specialized, focused materials that are designed to be used with small groups of children with specific needs. While this does represent an opportunity for innovation in curriculum design, Big Edu has spotted the trend and acquired a string of supplemental and intervention companies over the last five years. They are able to drop these programs via their existing sales channel. Different states are headed in different directions on this. In Florida's reading and language arts adoption this year, they had a separate process for supplemental programs. In the upcoming California adoption, the specifications require an integrated intervention program as part of the core program (thereby making it hard for the smaller intervention-only providers to participate).

Another reason for the consolidation is the decentralized demand in the sector. With 50 State Education Agencies, 16,000 districts, intermediate units in most states and 65,000 schools, there are a lot of decision-makers. Big Edu solves this problem of radical decentralization by building enormous sales forces of more than a thousand reps each. Arming their force with a broad and deep stack of products, they are able to leverage personal relationships with enough of the local decision-makers to be successful. Whether a district's focus next year is reading or math, high school or pre-K, phonics or whole language, the local Big Edu rep has a solution waiting. Indeed, she probably helped the district write the grant proposal that attracted the funding, and her colleagues on the government relations team probably lobbied for the legislation that created that grant program in the first place. Entrepreneurs generally cannot

afford to play this game. In our case, we confess that we did not at first understand that there was such a game.

The smaller companies are forced to make difficult choices to secure a distribution channel that can find its way around the oligopoly. Ramping up a sales force around a single product or small mix of products is a risky investment and difficult to accomplish (sales people in the industry understand this dynamic better than anyone and will often require significant cash guarantees to make the leap to a small company). There are two alternatives: regional selling by company founders, or sales via independent resellers. Founder selling is often well-received by the schools (especially if the founder is a local small business), but it is difficult to scale and tends to hit a wall around $5 million in revenue. Independent resellers (who carry the products of several small publishers) can help a company get to $20 million in revenue but usually not beyond it, and the eventual transition to internal sales reps is often wrenching (the independent reps keep the customer relationships, so when a given company drops them, they can swiftly tilt their relationship toward one of the other companies that they represent).

One could ask at this point why the oligopoly is such a problem? The large number of small businesses, and the success of the founder sales model in getting these off the ground, indicates that the market has plenty of room for new entrants. There are a few hundred players between $1.5 million and $15 million revenue. How then does the oligopoly present a barrier?

The problem is not in the first moves, but in the middle game. The small business owners in education are not necessarily entrepreneurs. Many of them are building "lifestyle" businesses to keep themselves engaged after they retire from the school district. They are not attracting investment capital to drive accelerated growth and in many cases do not want to grow beyond a certain size. In their local community, they get to know the local landscape just like

the local Big Edu sales rep, and they learn to thrive in that small pond. They are not entrepreneurs who want to innovate across the sector, to create value by redeploying resources, and to take high levels of risk for high levels of reward – enough potential upside to justify gambling years of low salary, high stress and uncertainty. The would-be entrepreneur scans the educational landscape, notes the crowded field of small companies and the rarity with which any of them cross the chasm to become big companies and starts looking at other sectors.

A primary reason Wireless Generation was able to grow to its current size is that we had a rare opportunity to sidestep these barriers. The Reading First component of No Child Left Behind created an unusual amount of liquidity centralized at the state level (about $200 million per year) that did not already have a bureaucracy trained to spend it and that was distinct from another $800 million per year for the districts. So we were able to visit state capitols and win eighteen state Reading First assessment contracts, rather than having to visit the thousands of districts those contracts comprised. The founding executive team was able to do much of this selling, so we were able to keep the sales force under five people for the first five years of the company. As we opened up opportunities in new states, we were able to hire regional representation to expand our presence beyond Reading First (we have ten representatives today), but we did this expansion once we already had momentum, and thus never had to make the big up-front investment in a standing army. Such legislation is almost unprecedented and certainly has not repeated itself for any of our other products. The hope that we might repeat this phenomenon (Math Also First?) has provoked us in recent years to try to figure out the game of big league lobbying and government relations – but we are still very much in the minor leagues, and such investments are a drain of resources away from the core educational innovation that we would prefer to be about.

Barrier #4: Vicious Sales Cycles

At a recent presentation we made to Stanford Business School students interested in education, a student provided what was almost the right diagnosis of the industry: "From the complexity of the district decision-making process you just described, it seems that in education, no one is in charge."

Our wistful reply: "If only that were the problem, but the situation is much worse: In education, *everyone* is in charge."

Our sales process often involves winning the support of state policy people who oversee the relevant funding streams, academic consultants who advise the districts, key school board members, the district curriculum leadership, the special education department, the office of research and assessment, the Chief Information Officer, the Director of IT, the principals of the individual schools, the reading coaches in the individual schools, the district lawyers (we store personally identifiable student data) – and then finding the person in procurement who can figure out how the district will pay for it all. It should be noted that, of this long list of people who are "in charge", most of them are only authorized to say "no". Only a few people have the budgetary or instructional authority to say "yes".

This mob of stakeholders means a long sales process that often surfaces political tensions that further complicate matters. Several of our sales processes are four years in the making. Our average sales cycle is about eight months to get some of the schools in the district as customers and about 18 months to expand to the whole district. Fellow education entrepreneurs tell us that this is comparatively fast. Slow sales cycles make things hard for entrepreneurs who need capital to keep operating, and who need to prove to investors that they have created something

worth supporting. The typical investor does not understand that, in education, a product could be "hot" and yet take two years to sell.

There is one precious, if disturbing, exception: In the final days of the fiscal year, schools sometimes find themselves with money that they must "use or lose". At this time, the long, involved process goes out the window, and we get a breathless call: "How much of your product can I buy for $61,000?" One of the most useful things we have learned from our veteran sales people is always to leave a price proposal behind, even when the district does not seem ready for one. If your proposal is in the desk drawer when use-it-or-lose-it time rolls around, you just might just get the lucky call. We have sometimes gotten this call two years after a sales lead appeared to have gone cold. But these last minute calls, while delightful, represent less than 1 percent of our sales.

The longer and more political the sales cycle, the less attractive a market will be for an entrepreneur hoping to inspire rapid change. Still, it would be possible to overstate the importance of the *length* of the sales cycle. A long sales cycle with rigorous, adventurous procurement at the other end of it would still inspire entrepreneurs, but if what is waiting at the other end is a pilot, then the story might be different.

Barrier #5: Pilot Error

Even when a district does decide to buy a product, the first instinct of many school administrators will be to pilot in a small number of classrooms. This approach may seem prudent, but it has unintended consequences. Many promising start-up companies have been killed by early interest in their product from people who were not quite ready to purchase it at a scale that is economically viable. So the start-up company agrees to do a pilot program at a low price to get in the door but ends up servicing the customer with a lot of expensive onsite

handholding because the stakes are high that the pilot be successful. Or worse, the pilot is not successful because the company cannot afford to do this handholding, and because the teachers can withhold their commitment from "just another pilot".

Even when the pilot is successful, the same decision-maker who could not pull the trigger at the outset, often rewards the successful pilot with an expansion from ten classrooms to fifteen, or with nothing but a congratulations, because that person never really had much budget authority in the first place.

One noble resistor of this dynamic was the Grow Network, a start-up that delivers useful reports interpreting high-stakes test data for parents, teachers and principals (it is now a division of McGraw-Hill Education). Grow insisted on citywide or statewide contracts and would not entertain requests for pilots. Grow founder David Coleman believes that this policy cost them some customers, but it meant the contracts they did win were economically viable and enabled them to focus on making the product and service successful at scale. As Coleman puts it, "Building for scale transformed our product development and professional development from the beginning. We knew that since we were working with 4,000 teachers, we couldn't make a thick, difficult product that required in-depth, one-on-one training. This approach is very different from the notion of building something that will work in one school and hoping it will go to scale. The pilot notion (as well as the charter approach) raises the danger that we will develop micro solutions that only work at the school level and very few truly scalable approaches."

Barrier #6: No Return

A few years ago, in a mid-sized suburban district, we had prepared a comprehensive proposal to provide early literacy screening, diagnosis and progress monitoring, plus training for all teachers and principals in how to use this literacy data. The new literacy director objected

that our $160,000 proposal was too expensive. We asked if the problem was a budget limitation, but she assured us that the district had adequate funding. So we asked if the product was insufficiently valuable to justify the price, but she assured us that she thought the product was great. "I guess the real problem I'm having," she gradually admitted to herself and to us, "is that $160,000 is more than I spent on my *whole house*."

Few school administrators have a formal training in business decision-making or in calculating return on investment. They are often promoted from the classroom, and we find that they are often more comfortable with teaching and learning than with procurement, negotiation private-public partnerships. The problem for education ventures is that such administrators will tend to make decisions within their comfort zone – they will usually choose to solve a problem with additional district people and processes rather than with tools, systems or outsourced resources – without regard to whether the additional district people might be the more expensive or less effective option. The return on investment mindset that drives other sectors to replace expensive labor with technology, and that sees the logic of scaling such efficiencies rapidly, does not come naturally to K-12.

When people ask us about our competitive landscape, we always say that our biggest competitor is the district's decision to create a solution in-house, especially because the district often concludes that using five in-house people costs nothing (rather than that, it costs $500,000).

This tendency is not just a middle-management limitation. We had an enlightening correspondence this summer with an education scholar who has also worked at the US Department of Education. This national expert lamented that the educational data and knowledge management system (for which we are a sub-contractor) for which New York City is

developing at a cost of up to $80 million over five years could instead pay for building "two new state-of-the-art elementary schools."

We pointed out that, in the corporate world, an organization with a $17 billion annual budget that spent only $18 million per year on its enterprise decision-support system would be considered irresponsible. We further pointed out that two new elementary schools would represent only a 0.4 percent increase in the number of elementary schools in New York, and that these schools would not be state-of-the-art if the teachers in them lacked the very things this system is designed to provide – access to attendance data, formative assessment data and basic electronic communication and research tools that are now taken for granted in other professions and in wealthy suburban school districts. We also made a purely quantitative "return on investment" argument: Given the following ways in which this system will save many more than twenty hours per year per teacher, the system pays for itself. These arguments did not carry the day, perhaps because the expert's issue was not a matter of return on investment, but rather a notion that $80 million over five years is an unseemly amount for educators to spend on something other than facilities, people or basic instructional materials.

Barrier 7: Viewing Teacher Time as a Sunk Cost

Implicit in the return on investment discussion above, but worth addressing directly, is the problem that teacher time is perceived as a sunk cost (a cost that has already been incurred and cannot be recovered). The argument goes: We have already paid our teachers, and we were not planning to downsize next year, so there is not any economic benefit to saving teacher time.

Wireless Generation's main reading assessment product streamlines a previously time-consuming paperwork process, which has been demonstrated in several independent studies to save at least 25 teacher hours per year on required tasks. It is telling that our marketing materials

almost never use what would seem to be a compelling argument: that twenty-five teacher hours is worth approximately $1,000 more than the cost of our product. We tried using this argument at first, but no one in education seemed impressed by it. Teacher time is viewed as a sunk cost and therefore saving teacher time does not "count" in economic terms. Sometimes districts must reduce their headcount, but never, in our experience, because of an assumption about increased productivity.

In other fields, many of the compelling applications of technology have to do with making labor more efficient, thereby enabling a reduction in people or an increase in output. Such productivity tools are generally good entry points for entrepreneurs, because they have straightforward value propositions and measurable return on investment, such that a new company does not need pre-existing relationships or expensive marketing to make its case.

Even if the education sector is not interested in reducing the number of teachers, it would still be good for the teaching profession, and for the ability of entrepreneurs to articulate their value propositions, if the education system started to quantify the value of a saved teacher hour in terms of its increased instructional output.

One of the main excuses school people will give for not adopting new tools is that they cannot free up the teacher time for adequate training. This is a genuine obstacle in some cases, and it is often accentuated by union rules, but is certainly ironic when the tool they would be learning would lead to a net savings in time. Our sense is that the unions want to see time-saving, professionalizing tools for teachers and would adapt their rules accordingly.

It would be hard to think of another industry in which 85 percent of the budget is going to something for which there is so little investment in systems that could make it more time efficient.

Barrier 8: Short-Lived Superintendents

The tenure of superintendents in large districts, while not as brief as has been popularly reported, averages fewer than five years. Substantial innovations in tools and systems tend to take a year or two to create and perhaps three or four years to refine. So if the superintendent does not start such projects in the first year – and these infrastructure projects are rarely considered a first year priority – then they would launch just as the average superintendent's term ends or under a successor with no commitment to the effort. As a result, many urban superintendents who believe that better instruction and assessment tools, data management systems, and communication systems are essential, still have little incentive to invest in them if their position is politically uncertain, if they are under the gun to deliver immediate changes in test scores, or if they are seeking to push every available dollar into salaries or teacher training.

Barrier 9: The Vendor Wall

When Dr. Margaret Honey, a respected education researcher who had run a division of the non-profit Educational Development Corporation, decided to join Wireless Generation this spring, she reached out to many of the people in her network. She was surprised by a new barrier in her path:

From: < [redacted].go[redacted]
Date: Sat, 14 Apr 2007 10:26:51 -0400
To: "Honey, Margaret" <mhoney@edc.org>
Subject: RE: Early Childhood Assessments

Hello Margaret,

I wish you the very best in your new venture. It sounds very exciting and certainly a key area of expansion at the present time. At the state department, we have a policy that recommends that we not meet with vendors. This protects us but also protects you. If we were to issue an RFP and you had met with us prior to the issuance, it might be construed by others as your having unfair advantage in the RFP process.
Please watch our website for RFP releases and best of luck in your new work.

Margaret was taken aback by this message and cut straight to the problem: "If this is the policy, how do they ever become informed about anything?" Every sales process has obstacles between the seller and buyer, and in cases where public procurement is involved there may be some needed formal obstacles to ensure the integrity of purchasing with public funds. But in education, the obstacles are unusually dense and are only occasionally attributable to actual procurement policy (though it is often used as an excuse for not taking meetings).

The vendor wall should not be blamed entirely on educators. Vendors, especially those bearing technology, have sold some dreadful things to schools over the years. The gap between what was promised and what was delivered has been enough to inspire lasting mistrust. And there are many education sales people who have not made an effort to understand the actual challenges educators face.

Whether learned or innate, the culture of education is, as discussed above, often quite insular, and is not inclined to be interested in what an innovator from the outside might offer. There is no one that we know of, in any district, whose role is to be on top of the latest innovations or to be an expert at managing relationships with outside providers.

Educational decision-makers are particularly inclined to see newer ventures as risky (and they are right in a self-fulfilling way, because many ventures fail, or never achieve excellence, in part due to the expenses and difficulties they encounter trying to overcome this very barrier). Inexperience and failure is often tolerated within district organizations, but it is deemed conspicuous and embarrassing when it comes from an outside partner. As Charley Oswald, perhaps the twentieth century's most successful educational entrepreneur (Charley led the National Computer Systems for thirty years toward its $2.4 billion acquisition by Pearson) said

to us on the day he agreed to provide a start-up investment in Wireless Generation: "There is one basic principle of success in education: The School Man doesn't want to be embarrassed."

Innovation, however, involves taking risks. Innovative organizations develop cultures in which they are expected to take these risks - and as a result they develop expertise in mitigating these risks - often through establishing deep partnerships with collaborators. One thinks of the collaboration between the engineers at Toshiba who were trying to develop tiny hard drives, and the engineers at Apple who were trying to design a new digital music player. They had to be curious about, and responsive to, one another's goals, business models, supply chains, design processes and timelines. And there were professionals at both companies whose job it was to make such relationships sing. There are no "business development" people in education, and this sort of close partnership is rare indeed. Only twice[x] in more than a thousand district sales have we been asked what type of relationship, or what size of contract, would help our company succeed.

Barrier #10: Start-Up Capital

Taking an innovation to market quickly requires capital. In most sectors, professional venture capitalists provide that capital in the form of early-stage investments, followed by later rounds of investment if the innovation looks promising. Venture Capital funds range in size from $25 million to $2.5 billion, but all of them are looking for the same thing: opportunities for 10 times or to 100 times returns on their money. They expect to have a few hits and a bunch of misses, with the returns from the hits more than compensating for the losses on the misses.

Venture Capital is K-12 education-phobic. There are a few firms that focus on education like Quad Partners, Ascend Venture Group, NewSchools Venture Fund (a nonprofit), and a few others that have made an education investment or two and then lost interest. The barriers to

entry described in this chapter constrain the size of a potential return in the sector, and education companies require too long – 5 years, at least – to garner a meaningful return. (Because venture capital funds are measured by their internal rate of return, the timing of the return matters quite a bit).

In our case, the professional venture capital firms were impossible to convince to fund us – even the smaller mission-driven and non-profit ones. We turned instead to "Angel Investors", individuals with sufficient personal wealth to make independent investments in small, early-stage companies. If one does not explain in detail all the barriers above, and one sticks to the big numbers (a $500 billion dollar market) and one has a natural interest in making a difference in education, then an education business seems like an interesting risk to take, especially for someone wealthy enough to have made the same size philanthropic gift to an education cause.

All of Wireless Generation's investment to date is from "angels". The advantage of angel money is that it tends to be more patient than venture firms that often have five or seven year clocks. As one of our investors told us, "If you sold Wireless Generation today at a good price, I would just have to go find a less interesting company to put all the money I made into." So we are not under pressure to meet an external deadline for value optimization and exit. That is good, in that it has given us time to find ourselves and establish some genuine value in our products and relationships, but it might be bad for driving the most rapid kinds of growth. Wireless Generation, even if it succeeds over fifteen years, may be yet another proof point that education takes too long for institutional investors to take seriously.

Another subtle disadvantage of angel investment can be in attracting veteran executives who are experienced in helping companies transition from medium to big or from early success to successful exit. A key part of the compensation package that would enable a cash poor

company to recruit such an executive is stock options that give the individual a stake in the ultimate value of the company. It is a form of profit-sharing that recognizes that growth companies do not often generate profits, and what profits they do generate are re-invested rather than distributed. But for stock options to have value, there has to be a "liquidity event" on the horizon – a sale or an initial public offering that converts shares to dollars. Those experienced executives know that angel investors often signal a company that will take its time getting to a liquidity event, so they prefer venture capital-funded companies, of which there are few in education.

Removing the Barriers

There are some relatively simple steps that districts, policymakers, foundations and entrepreneurs themselves could take to work around the barriers or dismantle them entirely.

1. Achieve Scale and Collaboration by forming Consortia

Two major barriers discussed above were the lack of R&D funding and the decentralization of demand. A simple path around these barriers would be for districts and states to form consortia in which they pool their resources and their expertise to help bring a new product or service to market.

The New England Compact brought Maine, Rhode Island, New Hampshire and Vermont together to develop new state tests in ways that these states could not have afforded on their own. The top assessment companies might not have pulled out all of the stops to win a contract just with Rhode Island, but together these states were big enough to command more attention. At least as important, the Compact was an opportunity for the states, researchers from the Education Development Center and the assessment companies to work together on an agreed upon set of grade level expectations that would drive the assessment. Nine states similarly collaborated this

year to create an Algebra II assessment that would provide a foundation for high school math reform.

Wireless Generation is currently working with a consortium of states who wanted to build new tools for performing school improvement audits, in particular for schools in their fifth year of not making adequate yearly progress. This product might have had too limited a market if we were building it for just one state, but building it for several made sense.

These consortia are a simple way to consolidate demand, to save money and to avoid re-inventing wheels on the supply side. There is usually much commonality in what neighboring states and districts are trying to achieve, but it is rare that they work together. Their procurement processes are different, they imagine that their state standards are unique and they sometimes want to outperform their neighbors rather than collaborate with them. But most of this can be overcome after a few minutes in a room together. State and district leadership need to assert that this sort of collaboration is a priority, and then the process usually happens naturally.

The consortium model not only pools resources, but it signals to the entrepreneur that this is a problem for which many customers beyond the consortium may be seeking a solution, and it signals to future customers that this is a solution that has already been "vetted" by several school systems.

In this global era, it would be exciting if some of these consortia were global – perhaps triggered by pooled funding between departments of education in different countries, thereby providing an opening for more international trade in education products and services.

2. Commissioning R&D Rather Than Procuring Finished Products

Most of the "big ticket" items in education are purchased in competitive bidding processes. In many of these cases, the product to be bid needs to be largely finished before the

contract is even awarded. For example, to be adopted as a textbook, the textbook has to be written in advance. As a consequence, the big publishers invest a large amount of money upfront in the hope of designing the right product. Little publishers generally cannot afford to take this risk. And the big publishers would admit that they could invest even more if they were not hedging their bets against the risk that they might not get adopted.

Compare this to how procurement works in more R&D friendly sectors. When NASA wants a new spacecraft, it does not expect Boeing and Lockheed to build it on their own dimes in the hope of getting the contract. It invites the industry to submit proposals and sometimes even funds the early development of competing designs – and then it picks a team with which it will work closely to bring a new product into existence.

There are some bids that work this way in education (assessment more so than instruction), but not many. If a big state textbook adoption were to change the rules such that they simultaneously adopt finished products and also provide R&D commissions for compelling proposals to work toward the next adoption, there would likely be a line at the door for the entrepreneurs to get in and a chance for dramatic improvement in what gets submitted in the next adoption.

3. Create A Welcoming Climate for Promising Disruptions, Including Open Source Business Models

Entrepreneurship is often driven by the search for, and discovery of, "disruptive" technologies and business models that transform a sector. It is not easy to figure out how the education sector should welcome disruptions and innovations that do not exist yet, but a simple first step would be to ask for them – to articulate the demands that would inspire entrepreneurs to try to create a supply.

One promising example is the work on open source curriculum promoted by the Hewlett Foundation, Curricki, CK12.org, and Wireless Generation's own "open source" reading intervention (www.free-reading.net). By making one of the most expensive parts of the value chain (the textbook) free, these projects promise to create new points of entry for entrepreneurs as they direct new resources to the more important work of professional development, data and customization of instruction. As happened with open source software, it is likely that when the product becomes free and open, the services that surround the product become all the more valuable.

[i] Chris Whittle, *Crash Course* (New York: The Berkley Publishing Group, 2005).
[ii] Total market of $15.5 billion, includes basal, supplemental, reference, assessment, enterprise software/services, and professional development (Eduventures 2004).
[iii] J. Mark Jackson et al., *K-12 Solutions Learning Markets & Opportunities 2004* (Eduventures, 2004). Hardware, software/services, and 50 percent of assessment totals $7.6B.
[iv] National Center for Education Statistics, *Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2004-2005 (Fiscal Year 2005) First Look* (Washington, DC: U.S. Department of Education, 2007). Current expenditures equal $424.6 billion.
[v] "From Clipboards to Keyboards," *The Economist*, May 17, 2007.
[vi] Kathleen Kennedy Manzo and Andrew Trotter, "Houghton-Harcourt Deal Seen ad Yielding Big 3 of Textbooks," *Education Week*, July 16, 2007.
[vii] School Specialty is also in the billions, but their focus on supplies leads us to exclude them from this analysis.
[viii] "2007 1st Half M&A Trends Report" (New York: Berkery Noyes Investment Bankers, 2007). Their analysis carries us down through the $1.5M bucket, but our experience on the ground tells us that there are many more small businesses below this revenue threshold that have not caught their attention.
[ix] A good overview of the textbook adoption process and its problems is: Chester Finn and Diane Ravitch, "The Mad, Mad World of Textbook Adoption" (Washington, DC: Thomas B. Fordham Institute, 2004).
[x] One experience that we had with such a collaboration in Montgomery County, Maryland is detailed in a Harvard Business School case by Stacy Childress. This sort of partnership is a rare exception brought about because Jerry Weast is an experienced, secure Superintendent with a long track record of success, and his Deputy Superintendent, John Porter, had substantial private sector experience. Another remarkable example occurred in Texas, when it gave us our first large contract. In the negotiation, the team at the TEA took enough of an interest in the challenges that we would face scaling from a twelve person company to a company that could serve the whole state that they agreed to establish an unusual contract in which we would be paid a fixed amount every year for seven years as we scaled up from 1 percent to 100 percent of the students in Texas. At the beginning, this would be more money than we would normally charge for serving 50,000 students (the extra could go to building our capacity for the future), but by year seven, we would be getting much *less* than we would normally charge for serving 1.2 million students. This was a win-win – they won by mitigating the risk that we were too small to handle the project and by getting a better overall price; we won by getting growth capital from a key strategic customer rather than by taking on debt or selling equity.