INDUSTRY TRENDS & INSIGHTS

Exploring New York City's Economic Sectors

EDUCATION TECHNOLOGY IN NEW YORK CITY | JANUARY 2015

HIGHLIGHTS

NYCEDC Economic Research & Analysis

Center for Economic Transformation

IN THE LAST DECADE, the market for Education Technology (EdTech)—the use of new computer technology to support education at all levels—has blossomed. Startup companies have sprouted up, traditional textbook publishers have moved much of their focus to new educational technologies, and new online models for learning or collaborating have taken root.

New York City is uniquely positioned as an EdTech hub due to its large number of universities, historic cluster of publishers, and its emergence, in recent years, as a global technology center. New York City's five boroughs have a total of 51[1] public and private colleges and universities as well as more than 1,800 K-12 schools[2], many of which (notably Stuyvesant Academy) serve as pilot schools for innovative technologies. Companies such as Pearson and Scholastic have embraced new technologies, created accelerators for innovative startups, and purchased companies to increase their presence in the sector. As New York City has grown into a hub for technology companies, access to venture capital and complementary ancillary services for EdTech firms are approaching the concentration found in the San Francisco Bay Area.

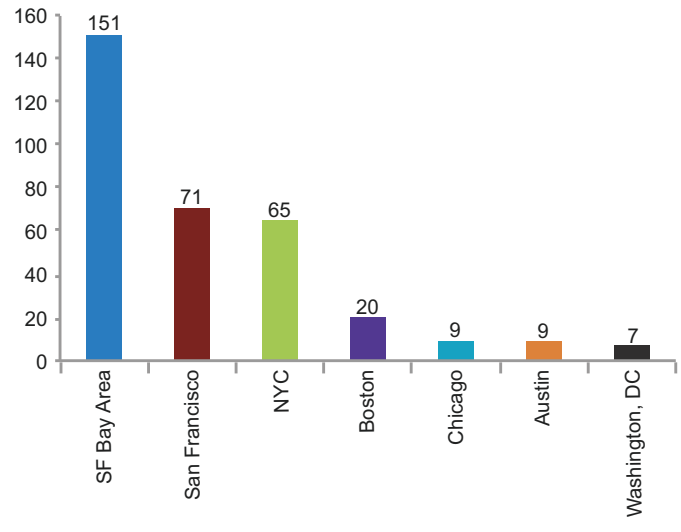
Employment

According to data compiled by the nonprofit incubator 4.0 Schools, there are at least 1,486 jobs in New York City at 63 EdTech startups (the number of companies for which they could estimate employment)[3]. The overall EdTech sector is far larger, however, if one counts the number of employees at established educational publishers such as McGraw Hill, Scholastic, and Kaplan as well as staff at academic institutions and non-profits, who are also developing and using the new technologies.

Corporate Training and Computer Training, a subset of the Education Technology industry, employed a total of 2,229 people at 219 establishments[4] in New York City in 2013. Wages for the two industries totaled $206 million in 2013, a 47% increase over the previous year's wages of $139 million. Average wages across the two sectors in 2013 were $92,500.

Using the number of open job postings, it is possible to compare New York City to other regions. EdSurge, the leading EdTech jobs board,[5] shows that New York City had 65 positions open in the sector in late 2014, lower than the Bay Area as a whole (151 positions) but very close to San Francisco's total of 71 open positions (see Fig. 1). Wages in the New York City Tech sector as a whole averaged $118,600 in 2014 according to a recent study[6].

Fig. 1 Highest Numbers of Job Postings in EdSurge Database



Source: EdSurge Jobs Board

Fig. 2 Map of Major Edtech Companies Headquartered in New York City

iZone

New York City's Department of Education spends roughly a third of the City's budget and is home to iZone, a team leading the transformation of education in city schools. iZone aims to bring cutting-edge innovation into the hands of schools, teachers, and New York City students. In 2013, iZone hosted an open software challenge in partnership with design firm IDEO and incubated six startup companies for eight weeks. One of the six was the startup Admitted.ly, a site which helps students make college application decisions and which was recently highlighted by CBS and Fox Business.

Building on this success, iZone launched the Gap App Challenge to address the variance in math education and mastery among New York City middle school students. Winning companies received a total of $50,000 in prizes as well as credits for using Amazon's AWS online hosting service. They included KnowRe, an adaptive math learning company, and Hapara, a teacher dashboard for Google Apps. iZone followed up this initiative by partnering with the Gates Foundation for the Short-Cycle Evaluation Challenge, which pairs six companies each with schools based on teacher needs in the fall 2014 and will do so again in spring 2015. The challenge helps emerging EdTech companies conduct iterative design prototyping and rapid-cycle evaluation for their products. Companies competing in the challenge include LightSail, a suite of tablet-based tools for improving literacy and Edusight, an online gradebook for school teachers.

Size of Market

Education Technology has the potential to disrupt the education sector in New York City. Given the number of schools around the city and the number of people they employ, this group represents an important share of the city's economy.

In 2013, a total of 347,000 people worked in private and public Education positions in New York City, representing 9% of total employment in the city. The City's public school system is the largest urban school district in the country[7], with 1.1 million students enrolled at more than 1,800 schools. Additionally, there are nearly 900 private schools in the city, serving more than 220,000 students[8]. According to the American Community Survey, there were more than 671,000 higher education students living in New York City in 2013[9]. With a total of more than two million K-12 and college students in the five boroughs, New York City provides a huge target market for EdTech companies to both demonstrate their products and collaborate with schools and nonprofit partners on innovative programs.

Industry Trends

Technology is quickly becoming an inseparable part of the modern education landscape at all levels, with more than four million elementary-through-high school students across the country using online tools in 2010[10]. A number of studies focusing on education outcomes have shown benefits to incorporating technology in learning including improvements in literacy for children using iPads in Kindergarten[11] and improved scores on algebra tests when computer-aided tutoring software is used[12].

Interactive learning is also changing the way that students absorb information. Typically, it involves a shift from rote memorization to a more personalized learning approach where students feel invested in the learning process, helping them to master complex material[13]. While there are benefits to improving access to educational technology, there are also costs. These include training teachers, finding instructors with computer experience, and improving school technology infrastructure and broadband penetration. The latter can be a particular challenge for schools in neighborhoods that lack existing infrastructure; data suggest a correlation between lack of access to broadband internet and poverty[14].

Five distinct market segments exist in the EdTech space: legacy publishers of media, online instruction, tools developers, corporate training and tech education, and collaborative learning (see Fig. 3 for a selection of NYC-headquartered companies by segment). Legacy publishers of media, particularly those previously active in education, have embraced the EdTech movement and understand that technology and digital tools can augment student learning, impact teacher performance, and capture metrics in new ways. Pearson, Houghton-Mifflin Harcourt, and McGraw Hill, the big three educational publishers, have taken steps such as creating in-house accelerators and startup incubators like Kaplan's EdTech Accelerator and Pearson Catalyst. Other strategies include the creation of in-house teams dedicated to exploring new platforms and new ways of leveraging digital media. These include the Pearson Center for Digital Data, Analytics & Adaptive Learning, McGraw Hill's new R&D offices in Boston's Innovation District and the company's partnership with UPenn's EdTech startup incubator The Education Design Studio Inc. (EDSi). Increasingly, publishers have also been buying EdTech startups. For example, McGraw Hill acquired Engrade for $50 million in Feb 2014[15]. Finally, many publishers have partnered with startups such as Knewton in order to make their content presentable in a tech-focused way.

Online instruction facilitates and complements delivery of traditional content with digital material. It can also allow for new platforms that challenge or leverage traditional modes of education. This segment includes private educational institutions such as Phoenix University and

Fig. 3 Selected New York City-Headquartered Firms by Market Segment

Market segment	Company	Valuation/Revenue/Funding
1. Legacy Publishers of Media	McGraw Hill Financial Scholastic	$4.9 billion[17] (2013) (r) $1.82 billion (FY 2014) (r)
2. Online Instruction	Skillshare Codeacademy Voxy	$20 million (2011) (v) $12.5 million (f) $18.8 million (f)
3. Tools Developers	Knewton Brainscape Neverware TeachBoost	$400 million (2014) (v) $2 million (f) $7.6 million (f) $1.5 million (f)
4. Corporate Training and Tech Education	Flatiron School General Assembly	$5.5 million (f) $49.5 million (f)
5. Collaborative Learning	Schoology	$25.1 million (f)

Mass Open Online Course (MOOC) providers Coursera, Khan Academy, and Udemy. Many of these focus specifically on tech skills, including Codeacademy and CodeSchool, while some like Lynda.com are more broad-based in their offerings. Language acquisition is also seeing gains in the online/digital medium with companies such as Rosetta Stone, DuoLingo, LiveMocha, Busuu, and Voxy pioneering inventive approaches in this space.

As computers have become an indispensable part of the office landscape, corporate training has naturally shifted to an online model, minimizing the costs of in-person trainers. According to Trainingindustry.com, the corporate training industry trade website, the size of the US corporate training market in 2013 was $70 billion[16], while the global market was approximately $130 billion with a growth rate of 15% that year. Part of this increase is due to the skills gaps in many industries, a challenge that the online instruction segment is also working to solve.

A number of companies have focused on tech education in order to bridge the skills gap facing employers across industries, usually allowing workers to take classes while continuing in their current positions. New York City-based companies Codeacademy, General Assembly, and the Flatiron School teach courses in web development, design, and data management, which allow those without a computer science background to expand their skillset in a focused way, outside of the traditional university model.

As education continues to shift online, a number of companies have made it easier for students to collaborate on their coursework. The largest of these include Washington, D.C.-based Blackboard (used at both the K-12 and higher education levels) and Palo Alto-based Piazza (used by more than 30,000 professors), which allow instructors to post and collect assignments, give help to students, and encourage information sharing between students through online forums. Other prominent companies include Brainly, a social network with more than 30 million users, which allows students to work together on group assignments and receive homework help.

EdTech's Democratization of Education

EdTech companies have democratized education through Massive Open Online Courses (MOOCs) offered by companies such as Coursera and EdX. These companies allow students to participate at their own pace in online courses offered by major universities at either no cost or for a low fee if students are interested in receiving certificates of completion. The market size for MOOCs is very large, with more than ten million students at Coursera alone[18]. Along with this, specialized companies such as the technology education companies mentioned earlier (Codeacademy, General Assembly, and the Flatiron School) offer courses teaching skills that are relevant to today's digital world, including web design and data science, allowing more people to learn valuable skills without having to enroll in a university program.

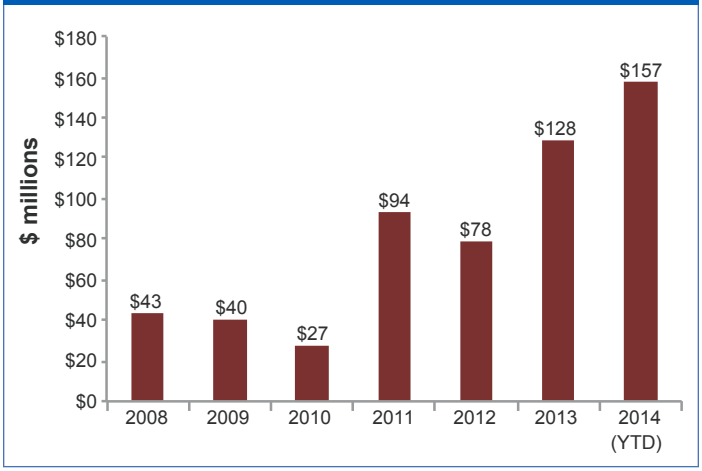
Sources of Capital for EdTech

Venture capital funding for New York City EdTech companies has been rapidly increasing since 2008, with $567 million in funding going to the sector between 2008 and 2014[19] (see Fig. 4 for a year by year breakdown). The largest deal in the space during that time period was Knewton's $51 million Series E funding round in December 2013 from investors including FirstMark Capital, Accel Partners, Bessemer Venture

Partners, and Founders Fund (Fig. 5 shows VC funding round figures for other NYC-based startups). In 2013, New York City saw $128 million in funding for the sector, 10% of the total $1.2 billion invested in the sector worldwide that year[20]. The total amount of funding from January to November 2013 ($157 million) has already surpassed that number. Private equity has also taken note of the earning potential of EdTech startups, with a $1.1 billion deal by Hellman & Friedman to acquire Renaissance Learning in March 2014[21].

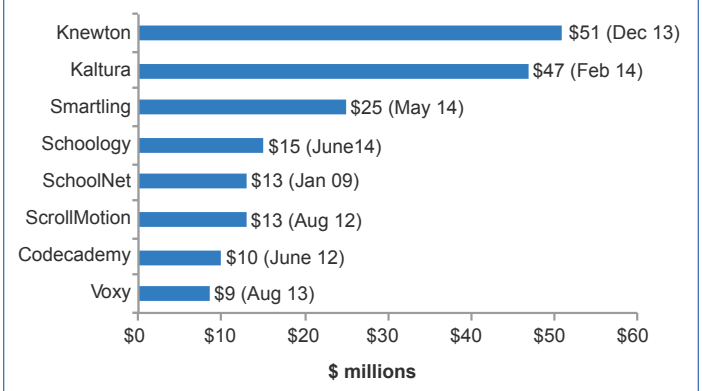
Along with the rise of startups in the field, a number of established companies (mainly publishers) have realized the potential of investing in new technologies and have made inroads into the sector. Houghton Mifflin acquired startup SchoolChapters[22], a cloud-based collaborative learning company, in July 2014 and in 2010 News Corporation acquired Wireless Generation (now known as Amplify Learning) for $360 million[23]. Other companies have established their own sources of funding for EdTech, including Kaplan's EdTech Accelerator, which is currently hosting early stage startups such as ClassWallet, Cognotion, and Branching Minds.

Fig. 4 Total VC Funding for EdTech Companies Based in NYC



Source: CB Insights DealSearch database

Fig. 5 Selected VC Deals for NYC EdTech Companies



Source: CB Insights DealSearch database

FirstMark Capital

FirstMark Capital, an early stage Venture Capital firm founded in New York City in 2008, has made multiple investments in Education Technology led by partner Amish Jani. The firm's latest two funds (FirstMark II and FirstMark III) each raised $225 million and FirstMark's portfolio companies raised a total of $675 million in 2013. EdTech portfolio companies based in New York City include adaptive learning company Knewton ($51 million raised in a 2013 Series E) and learning management software firm Schoology ($15 million raised in a 2014 Series C). FirstMark's other EdTech investments include San Francisco-based educational game developer Lumosity ($31.5 million raised in a 2012 Series D) and Baltimore-based online course provider StraighterLine ($10 million raised in a 2012 Series A). Six of FirstMark's portfolio companies have been sold, including online youth sports community WePlay (acquired by TeamSnap in 2013) and predictive analytics and messaging system Playnomics (acquired by Unity Technologies in 2014).

Conclusion: New York City as a Hub for EdTech Companies

New York City is a natural hub for EdTech companies to locate due to a high concentration of both publishers and institutions of learning. EdTech startups have also found New York City to be a welcoming business community with ample sources of funding as well as opportunities to apply their products to schools and other education programs around the city. As publishing has become increasingly digital, New York City-based companies such as McGraw-Hill have purchased EdTech startups and partnered with startups such as Knewton to deliver their content using new techniques. New York City's schools have also been catalysts for partnerships with EdTech, through programs such as Stuyvesant High School's pioneering Computer Science curriculum that expands students' knowledge of tech skills. Brooklyn's Pathways In Technology Early College High School (P-Tech) received a visit from President Obama in 2013 to recognize the school's collaboration with IBM in developing its innovative six-year curriculum[24]. Five schools based on the P-Tech model, a vocational school for the tech industry, have opened around NYC in 2013-2014 and five opened in Chicago in 2012. The iZone program, part of New York City's Department of Education, allows schools and city government to collaborate directly with EdTech startups to implement innovative curriculums. Iridescent Learning, a Bronx-based nonprofit, has brought STEM education to underserved communities around the world, partnering with organizations such as Cooper Union and the New York Hall of Science.

Notes & Sources

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The Economic Research and Analysis group from NYCEDC's Center for Economic Transformation conducts economic analysis of New York City projects, performs industry and economic research on topics affecting the City and tracks economic trends for the Mayor, policy-makers and the public as a whole. As part of its goal of providing up-to-date economic data, research and analysis to New Yorkers, it publishes a monthly New York City Economic Snapshot as well as the Trends & Insights series of publications covering such topics as Tech Venture Capital Investment, Borough & Local Economies, and Industry Economic Sectors. It also sponsors the Thinking Ahead series of events that brings together thought leaders and stakeholders to discuss and debate key issues shaping New York City's economic future.

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