

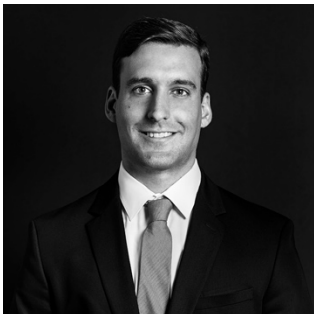
GLOBAL X ETFs RESEARCH

Introducing the Global X Education ETF (EDUT)

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Related ETFs

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[EDUT – Global X Education ETF](#)

On July 14th, 2020, we listed the Global X Education ETF (EDUT) on Nasdaq. EDUT seeks to invest in companies that provide products and services that facilitate education, including but not limited to companies involved in online learning and educational content/publishing, early childhood education, higher education, professional education, as well as enterprise video and chat communication platforms.

Maximizing one's education is the best way to stay competitive in today's global labor market. For laborers in low-skilled positions, robots and artificial intelligence pose a rising threat as basic tasks become automated (see [How Supply Chain Disruptions Are Accelerating Robotics Adoption](#)). For those in the service industry, the newfound ability to work from anywhere, not just in corporate offices, increases job market competitiveness as employers can recruit and hire from broader talent pools. And highly trained workers face potential skill obsolescence as rapid technological advancements necessitate continuous educational upkeep. The skillsets employers demand is evolving quickly and will likely continue to – the Institute for the Future estimates that 85% of the jobs today's students will have in 2030 don't exist yet.¹ The surging value of education in the workforce is driving strong growth across the global industry, with revenues expected to rise from \$6T in 2020 to \$10T in 2030.²

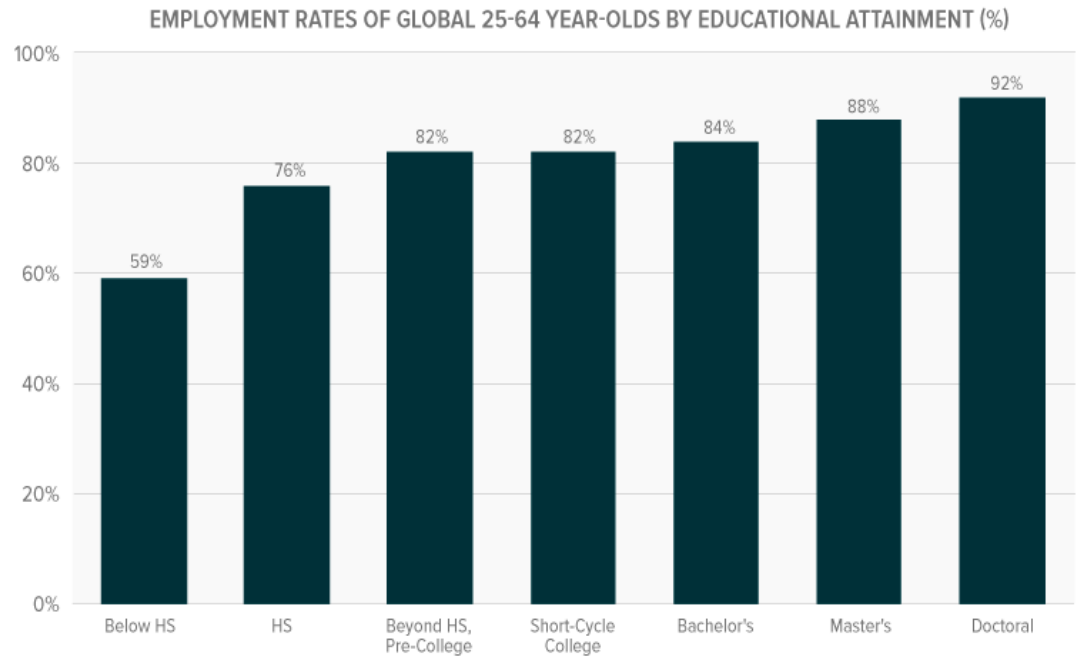
But as demand for education surges around the world, old and deeply-entrenched institutions are largely failing to rise to the challenge. Many government-run schools fail to meet basic education requirements, while private institutions demand exorbitant tuitions that limit access to wealthy families, primarily. Beyond quality and cost, traditional schools often still miss the mark by failing to equip students with skills that are applicable to their future careers. These shortcomings create opportunities for for-profit companies to offer improved and/or supplementary education services by fulfilling unmet demand, introducing unique business models, and leveraging technology to reduce costs and broaden access. In the following piece, we explore the current state of the global education industry, examine areas that we believe are ripe for transformation, and highlight how investors can access this disruptive theme.

Greater Educational Achievement Reduces Chances of Unemployment, Increases Earnings

A high school degree no longer serves as a primary qualification for employment. Of those aged 25-64 whose educational attainment ends with high school, 24% aren't employed.³ As discussed previously, technological advances and global competition, among other factors, create immense competition for work, favoring those with more defined skills.



GREATER EDUCATIONAL ATTAINMENT CORRESPONDS TO HIGHER EMPLOYMENT



Source: OECD, Global X ETFs, 2019.

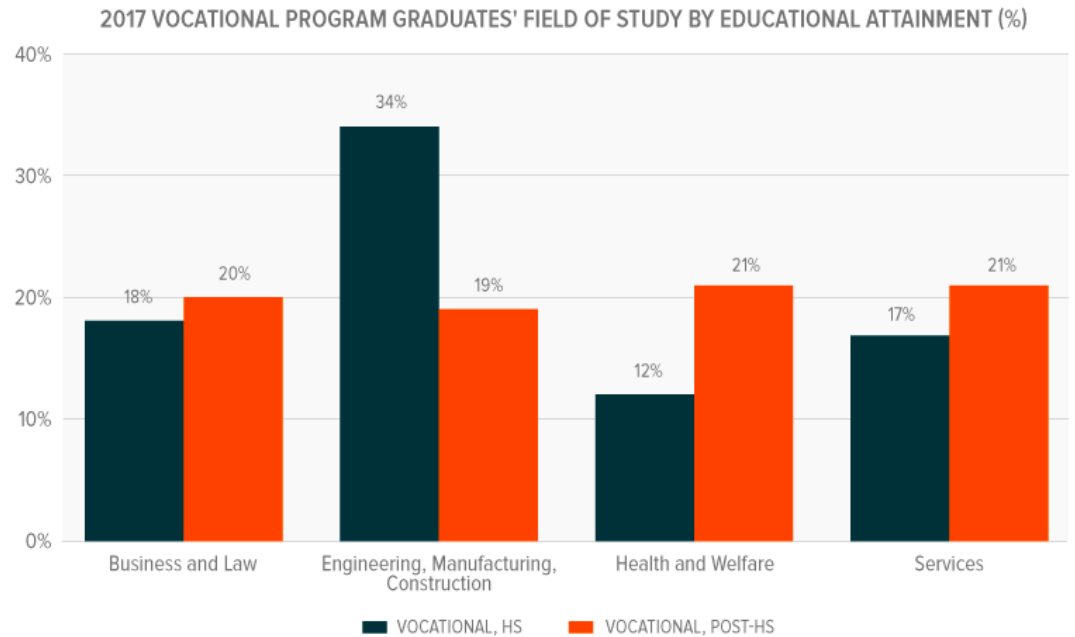
Many individuals turn to higher education like bachelor's and master's programs to attain these skills. The global share of young adults enrolled in bachelor's degree programs reached an all-time high of 24% in 2018, while master's and doctoral degree attainment rates remain somewhat constant.⁴ Individuals that complete these degrees primarily study business (24%), arts and humanities (19%), engineering (16%), health, and education (13%).⁵ Attaining higher levels of education can translate to real world success: as of 2018, 85% of those with tertiary educations were employed compared to 76% of those with upper secondary (high school) and 59% of those below upper secondary.⁶ Further, tertiary-educated individuals earned 57% more than upper-secondary educated ones.⁷

Country-to-country differences in resources, admissions processes, and degree-completion rates mean that many must explore avenues outside of traditional higher education institutions. Some of these include non-traditional tertiary education and post-secondary non-tertiary education. Vocational and professional education can fall under both of these categories, including formal training, on-the-job skills building, and training conducted in other settings.

On average, in Organization for Economic Co-operation and Development (OECD) member countries, around 18% of individuals aged 15-24 participated in vocational training in 2017.⁸ And many of those who enroll in such training see success: the OECD notes that "countries with well-established [vocational] programs have been more effective in holding the line on youth unemployment."⁹ We expect to see growth in this segment as younger demographics strive to hone their abilities for entrance into the labor market and older ones seek to modernize and maintain their skillsets.



VOCATIONAL PROGRAMS OFFER SKILLS-BASED TRAINING OUTSIDE OF HIGHER EDUCATION



Note: Not all fields of study are displayed.
Source: UNESCO, Global X ETFs, 2017.

Finally, today's parents, educators, and governments are underscoring childhood education so that today's youth are prepared for the jobs of tomorrow. Tellingly, younger students face higher expectations than in the past: in 1998 only 29% of teachers thought those entering kindergarten should already know the alphabet compared to 62% in 2010.¹⁰ This evolution is observable in academic settings through new emphasis on tech literacy and 'deep learning' where students learn how to apply concepts rather than just memorize them.¹¹

Outside of formal settings, parents increasingly turn to tutors to give their kids a competitive edge. The global private tutoring market is expected to reach approximately \$178B by 2026, up from \$96B in 2017.¹² In our view, companies involved with the provision of higher education, professional and vocational training, and early-education, child care, and tutoring services will benefit from the above-mentioned dynamics.

Leveraging Technology to Make Education More Accessible

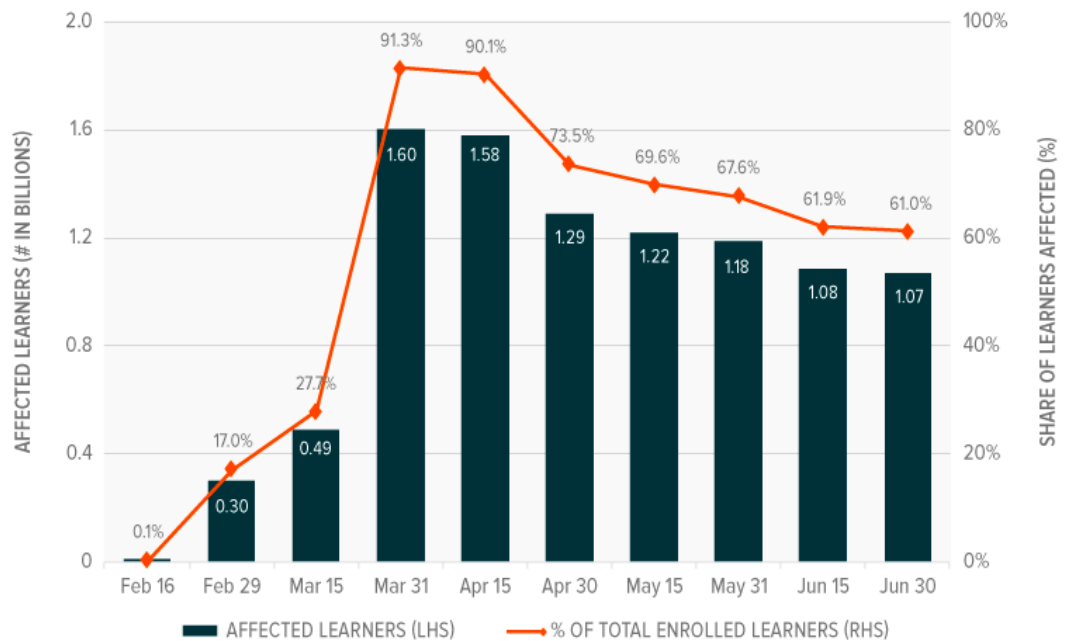
Modern education-enablers make education more accessible and successful. Education technology, or "EdTech," can remove logistical obstacles to education, like geography, by connecting students with institutions, teachers, and each other in ways that previously were only possible in the classroom.

We can look to COVID-induced school closings for the most immediate use case. Cloud-based video conferencing software became virtual classrooms. Online learning applications became curriculums and textbooks. And digital learning platforms became teacher's assistants, helping teachers organize and deliver coursework, while giving students a place to interact with their teachers. According to an EY-Parthenon survey conducted at the height of the pandemic, 70% of students reported using third-party technology solutions to continue their education at home.¹³ While we believe social distancing will remain a consistent theme even after the pandemic runs its course, these technologies are appealing for reasons beyond idiosyncratic events.



EFFECT OF COVID-INDUCED SCHOOL CLOSURES MAKE A CASE FOR VIRTUAL LEARNING

AFFECTED LEARNERS, # IN BILLIONS (LHS) & SHARE OF TOTAL ENROLLED LEARNERS AFFECTED, IN % (RHS)



Note: Figures correspond to number of learners enrolled at pre-primary, primary, lower-secondary, and upper-secondary levels of education [ISCED levels 0 to 3], as well as at tertiary education levels [ISCED levels 5 to 8] (per UNESCO Data) cross referenced with school closure data

Source: UNESCO, Global X ETFs, June 2020.

EdTech gives geography-constrained existing/potential students access to educational resources that they might not otherwise have access to. This can come from formal institutions offering online classes and degrees. UNICAF, for example, reached 18,000 students across Africa in 2019, offering courses from colleges across the world.¹⁴ But it also doesn't have to be as formal. Broad-based online learning platforms, or ones that focus on certain areas like language, allow individuals to be modular with what and when they choose to learn.

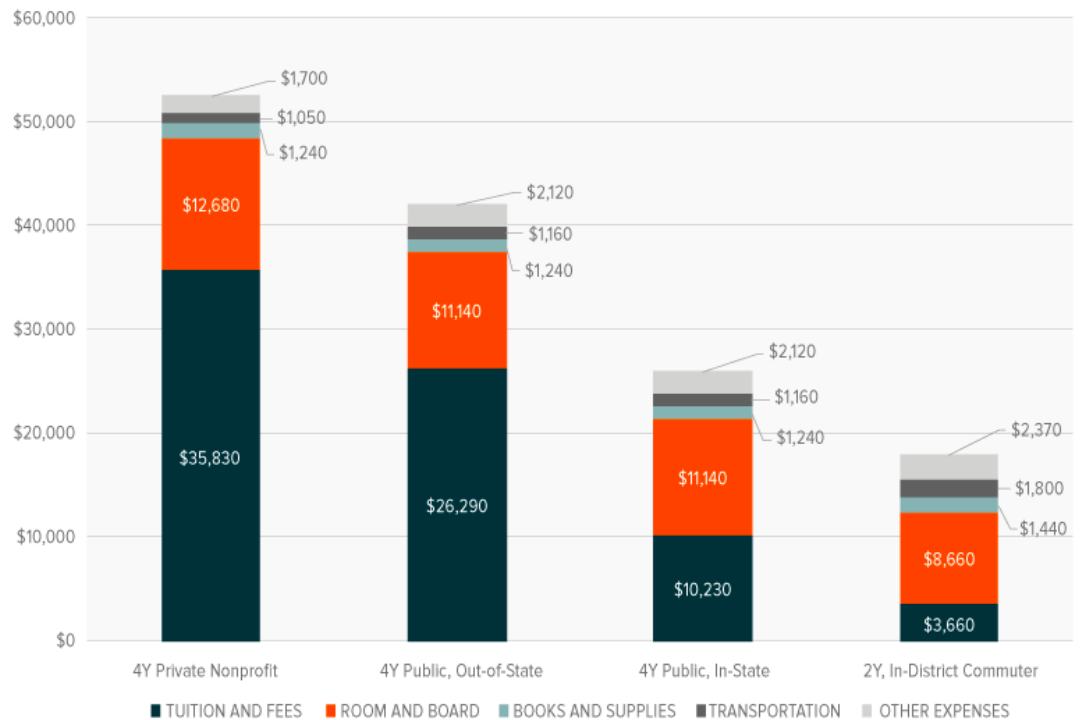
The same holds true for those constrained more by their schedule than proximity to traditional institutions. Online learning can give parents and working individuals the ability to attend classes while keeping their schedules flexible. In the U.S., where geographical constraints for education are minimal, 34.7% of those enrolled at higher education institutions engaged in some type of distance learning in 2019, up from 26.4% in 2013.¹⁵

Around the world, economic cost is a significant barrier to educational attainment. In the U.S., the cost of education continues to increase rapidly.¹⁶ From 2010 to 2019, the average undergraduate's tuition rose 17%, reaching \$35,800, while median weekly wages only grew 5% in that time.^{17,18} Fortunately, novel approaches to delivering educational resources can improve access by lowering education's cost barriers. For one, virtual classrooms and much of the technology we've already described remove the costly physical aspects of some education mediums. As we can see from the chart below, virtual learning would exclude high-cost budget items like room, board and transportation.



VIRTUAL LEARNING COULD HELP REDUCE STUDENT-SPENDING IN CERTAIN AREAS

AVERAGE ESTIMATED FULL-TIME UNDERGRADUATE BUDGETS (ENROLLMENT-WEIGHTED) BY SECTOR, 2018-19



Note: Expense categories are based on institutional budgets for students as reported in the College Board's Annual Survey of Colleges. Figures for tuition and fees and room and board mirror those reported in Table 1. Other expense categories are the average amounts allotted in determining the total cost of attendance and do not necessarily reflect actual student expenditures. Unless specified, students should be assumed as on-campus.

Source: College Board, NCES, IPEDS, Global X ETFs, 2018.

Novel tech-based business models can help mitigate other costs typically related to education. According to the College Board, the average U.S. college student spends approximately \$1,200 on books and supplies per academic year.¹⁹ Online textbook rental service, Chegg, claims to help lessen these costs, saving students who rent through them up to 90%.²⁰ Digital book publishers can also help lower costs for students. They do this by 1) lowering their margins via electronic releases, and 2) cutting out middleman booksellers who hike up textbook prices. Pearson, the world's largest textbook publisher, recently embraced a "digital first" strategy, announcing that all future editions of their 1,500 active U.S. titles would first see electronic release.²¹

Education-as-a-Service (EaaS) seeks to provide affordable, modular classes for those who may not want to enroll in a holistic program. Massive Open Online Courses (MOOCs) fall under EaaS and thousands of individuals can enroll in them concurrently, independent of any academic institution. In 2019, MOOCs reached 110 million students globally, collaborating with over 900 universities and imparting over 13 thousand courses.²²

Educational accessibility means more than just logistical and budgetary flexibility; it's also about making positive educational outcomes more likely. Increasingly, technology is becoming an essential part of the latter, as well. Artificial Intelligence (AI), for example, can leverage machine learning to understand students' individual needs, then designing and adapting curriculums to meet them. Implementing AI could augment learning by ensuring that students strengthen their weakest areas. It also optimizes teaching by reducing

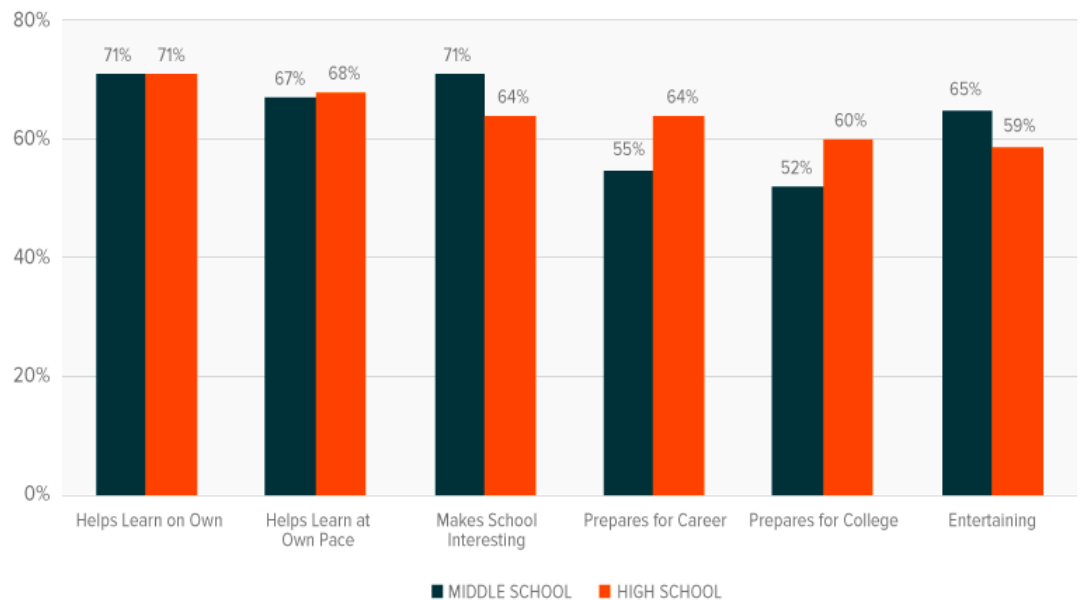


teachers' upfront workloads, sparing them time that they could allocate elsewhere. We can already see mass-implementation of such technology in China and are starting to see less sophisticated rollouts of it in the US. By 2025, global AI-EdTech expenditure is projected to reach \$6B.²³

Technology like augmented and virtual reality (AR/VR) and educational video games hold similar transformative potential. AR/VR can bring students "outside" of their classrooms or remote learning environments to experience events as if they were happening in front of them. This type of immersive learning contextualizes lessons in-line with today's "deep-learning" style of education and could help engage students – according to surveys, 97% of students would take a course that uses VR.²⁴ Educational video games could similarly engage students through gamification, which entails the use of game playing and performance monitoring to incentivize learning.

DIGITAL LEARNING TOOLS APPEAL TO STUDENTS FOR VARIOUS REASONS

SURVEY: U.S. MIDDLE SCHOOL AND HIGH SCHOOL STUDENTS' OPINIONS ON DIGITAL LEARNING TOOLS (% AGREE)



Note: Results are from survey of 2,696 public school students in the U.S., conducted solely by Gallup.
Source: Gallup, "Education Technology Use in Schools: Student and Educator Perspectives," September, 2019.

Implementation of the technologies we describe in education is still in its infancy, though educators and students both indicate that they would add benefit (see chart). In our view, these technologies should see greater adoption as the secular trends that brought them into existence continue to make them scalable and affordable. We expect these technologies' investability to increase in the years to come as public EdTech companies continue to build out their offerings and make acquisitions and as private companies IPO.

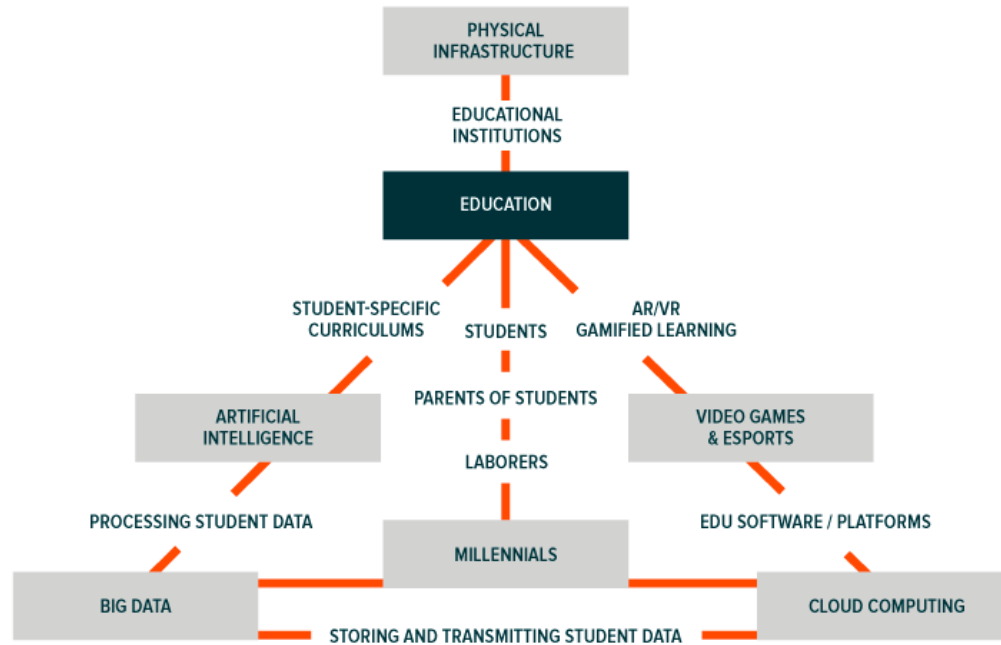
Conclusion

The global labor market is becoming more competitive as automation technologies like robotics and artificial intelligence and larger pools of candidates to hire from shape it as skills-centric. At the same time, governments and individuals strive to maintain high employment and improve the quality of life. Investments in human capital through education and training could prove critical in balancing these dynamics. Investors can play a part in this.



In our view, we believe for-profit businesses in the education industry are well-positioned to benefit from the global theme of rising demand for advanced education. Such companies include those involved in online learning and educational content/publishing, early childhood education, higher education and professional education as well as enterprise video and chat communication platforms. Finally, we believe the education theme will further benefit from convergence with other tangential themes (see below) as sector-agnostic disruption and paradigm shifts create synergistic momentum across related areas like rising millennials and advancements in cloud technologies.

EDUCATION SITS AT THE CENTER OF MULTIPLE THEMES' CONVERGENCE



Source: Global X ETFs, 2020.

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