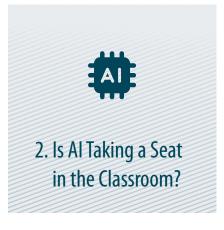






Ongoing Trends Across the EdTech Sector













Introduction

Back-to-school is a season of change for students, families, educators and school administrators alike. The start to this academic year feels particularly defined by the winds of change, which are already making a statement in the K-12 and higher education spaces.

To set a heading for the academic year ahead (and beyond), Baird connected with several education thought leaders and experts to discuss themes that are defining the business of education as the 2024 school year kicks off. In the coming pages, we explore some of those themes.

Our Participants



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Navigating a Post-ESSER World As Budgets Reset, Districts — and Vendors — Must Adjust

The K-12 sphere has been understandably anxious about the prospect of an ESSER cliff in 2024. In talking with our participants, our collective feeling is cries of "cliff" might not be the most accurate depiction of the situation. The wind down of Elementary and Secondary School Emergency Relief (ESSER) funding, is slated for September 30, 2024, and districts must obligate their funding by that date. With tighter budgets, districts are facing some tough choices this academic year. These changes will have knock-on effects for key programs and solutions while others will be sheltered from the impact.

WHITEBOARD

Federal funding is decreasing, but the conversation around an "ESSER cliff" feels a bit hyperbolic and, perhaps, doesn't give enough credit to the school administrators who have worked hard to plan for it. We are seeing some horse-trading going on among budgets. While ESSER dollars were often earmarked for one-time expenditures – generally CapEx but also for learning loss – many districts ended up using them to pay for staff, both new hires and raises for existing colleagues. Staff are the most painful part of the budget to cut, so districts are cutting

in other areas. As such, this year we're seeing more vendors fight to hold their budget position rather than increase it. And/or trying to get ahead of future cuts by offering longer term contracts at favorable rates.

ESSER funding gave districts a meaningful increase in discretionary spending power and resetting budgets to "normal" levels presents a big change for many. The challenge is even greater as this funding is sunsetting at a time when COVID-related learning loss and behavioral challenges remain. Some areas of the market will be sheltered from this change, but some solution providers will be forced to prove their value proposition.

OLIVER WYMAN

Traditional funding sources remain strong and there is ample money to spend on key priority areas such as core and supplemental programs; student engagement / active learning solutions; student safety / security / well-being; special education; parent engagement, back-office / administrative software; and the like. Special education, dropout recovery programs and staffing also have unique funding dynamics which offer additional protections.

"Federal funding is decreasing, but the conversation around an 'ESSER cliff' feels a bit hyperbolic and, perhaps, doesn't give enough credit to the school administrators who have worked hard to plan for it."

- Whiteboard



Based on our interactions with district leaders, we anticipate that the programs / solutions that will most likely be impacted by the end of ESSER funding are "one-off" / finite-duration like tutoring, professional development, and behavioral services designed to combat COVID-related challenges. Business-as-usual instructional programs are less likely to be impacted unless they are delivering low value, as districts will likely need to pare down the number of offerings they are purchasing.

The key success factors for companies managing through this environment are 1) ensuring that programs / solutions are used and delivering value and 2) demonstrating this effectively to customers.

- Oliver Wyman

MCKINSEY

Our survey research indicates that districts are planning to maintain spending in three areas. First, districts are prioritizing investments in recovering learning losses sustained during the pandemic with Intervention & Special Ed. curriculum expected to grow 1-3% p.a. over the next three years. Second, districts are planning to continue spending to support student well-being, with $\sim 1-3\%$ p.a. expected growth in wellness and mental health programs. Thirdly, districts are expecting to implement new strategies for persistent issues in student behavior and absenteeism. Conversely, early pandemic priorities could be less resilient, with potential reductions in investments in out-of-classroom programs (e.g., before / after school programs, summer learning

programs, virtual schools) and new capital projects (e.g., HVAC, classroom infrastructure) of \sim 1-2% p.a.

EYP

Rising costs of salaries and other non-negotiable elements of K-12 spending will likely put pressure on spending on other categories (e.g., instructional materials, software). In essence, while there is no "cliff," district decion-makers are most certainly feeling more constrained and solution purchasers are making more significant tradeoffs relative to prior years. This will increase the need for vendors to drive significant usage to ensure stickiness. That said, K-12 administrative software (e.g., SIS, ERP, talent software) continues to be essential to district operations. These segments did not see meaningful investment through ESSER funding and are also unlikely to experience significant reduction in spend post-ESSER expiration. Instructional materials will be mixed; going forward, districts will prioritize investing in instructional materials that address pain points that have emerged over the last few years, including shifting pedagogy (i.e., Science of Reading) and the increased complexity of student needs (i.e., IEPs, ELL students, etc), all while managing a less experienced teacher population in light of the ongoing talent shortage.

The sunset of ESSER funding is bringing another important theme to the fore: Stark differences in the spending priorities of districts with respect to the student bodies and communities they serve. That said, some challenges are universal, and all districts must solve for the looming budget changes. ESSER funding gave districts access to flexible capital. The end of such funding also means a return to the procedural challenges of securing capital for big-ticket projects and initiatives.

MCKINSEY

Our survey research indicates that 53% of district decision-makers expect a reduction in their district's spending post-ESSER and 60%



are concerned about funding programs after its expiration. Impact will be asymmetric, with large urban districts more likely to be impacted due to higher Title I share, continued enrollment declines, and heavier hiring burdens through the pandemic. Budget challenges could be compounded by several additional factors including sustained inflation, further enrollment declines, and the potential for increased labor costs. Given expected funding challenges, spending across most categories is likely to decelerate over the next two school years, with varying levels of resilience.

STAX

We are observing a bifurcation in how K-12 schools manage their budgets, segmented by school district poverty levels. Schools in higher-income and middle-class areas have allocated much of their ESSER funding to one-time expenses, such as school renovations, HVAC improvements and technology upgrades (e.g., iPads for all students, new computers, etc.). Conversely, schools in lower-income areas often use the funds for recurring expenses, including the addition of full-time teachers, behavior interventionists, and social workers. Although a majority of these districts

have plans to cover these expenses with new sources of revenue (e.g., state funding, local tax revenue, federal Title I funds, etc.), some districts have no plans to recoup the lost funds.

Across all demographics, schools have prioritized and allocated funding to address learning loss through digital tools and technology. Based on our conversations with superintendents, we anticipate districts will more strictly rationalize their IT expenditures as excess funding diminishes. Moving forward, there will be some instability in jobs added by lower-income school districts with tighter budgets. The areas most impacted by the reduction in ESSER funding will include one-time expenses, such as large-scale capital improvement projects. In recent years, schools had the freedom to undertake these projects, knowing their ESSER funding operated under a "use it or lose" it" condition. Now that many districts no longer have access to such flexible capital, they will have to rely on local taxes or state funds, adding another hurdle in the decision-making process for embarking on large-scale capital improvement projects.

Is Al Taking a Seat in the Classroom? How Will Teaching and Learning Change?

Al has arrived in K-12 and higher education. While it is currently most common in content creation and core back-office administrative functions, it has additional, exciting applications for educators, students and administrators alike. Use cases are emerging and potential applications are myriad. What role does Al play today, and how will it transform the education world in the years ahead? Our participants shared some unique perspectives.

EYP

Al is clearly set to drive some of the greatest levels of innovation in the education sector we've seen in some years. We share that common view but may differ a bit insofar as we believe the "robotutor / teacher" future may take longer to develop (despite a ton of investment activity there). While there is substantial activity around student-facing Al tools, our view is that the most successful



impacts in the near-term (in addition to the back-office and content creation use cases that are table stakes) will come not in the direct to student AI use cases, but rather in augmenting and improving the impact and effectiveness of teachers.

Near term, generative AI will generate a few notable impacts. In terms of number of generative Al tools and investment in those tools over 2022-23, study tools and virtual tutors are the most popular emerging Al solutions in education, comprising ~40% of tool development activity and actively impacting both K-12 and higher education learners. Perhaps even more promising, we also see sizeable activity in Al-driven workforce development tools (for learners), content creation tools (for educators), evaluation and feedback tools (for educators), research and information tools (for researchers), academic integrity / plagiarism detector tools (for educators and administrators), and education administration tools (streamlining administrative tasks and generating analyses and reports from data for administrators).

When we consider longer-term impacts, we believe other areas of teaching and learning show potential for longer-term disruption by Al-driven tools and models, including 1) student instruction and engagement during the school day (alongside or in place of specific instructor-led modules), 2) educator professional development (with Al used to analyze a teacher's performance and identify areas where additional training and/or support may be needed), and 3) certifying mastery, diagnosing misconceptions, and/or presenting and sequencing content for students.

Our feeling is AI is unlikely to eliminate classrooms or, in K-12 contexts, eliminate the traditional ~7-hour school day model.

Personalized learning represents a significant opportunity for all AI stakeholders. It has the potential to affect impact and innovation in the space – as well as compelling investment opportunities.

STAX

Within in-class settings, we have observed a dramatic rise in purpose-built AI applications for educational games and personalized learning. Venture capital funding has fueled this trend. In both higher education and K-12, students have been early adopters of generative AI, sometimes for use cases that do not align with their academic institutions' ethical practices (e.g., cheating on tests, plagiarism, etc.). This has expedited many universities' efforts to adopt generative AI applications that foster safer and more educational practices.

Although higher education and K-12 institutions have made significant progress in adopting in-class Al applications, they are still working to turn intentions into tangible results. In the near term, we anticipate a wide adoption of various generative Al platforms to enable more personalized learning, optimize teacher and professor workflows, and other applications. As these solutions develop, we foresee a paradigm shift from the adoption of Al point solutions (e.g., solutions that improve the efficiencies of specific instructor and student tasks) to more comprehensive next-gen Al courseware, which will operationalize new teaching and learning pedagogies and leverage institutional data.

MCKINSEY

We see early potential and openness on the part of decision-makers in exploring the use of Al. The potential for Al could be significant – particularly as it relates to further personalizing and driving more engaging student learning experiences, saving faculty time in labor-intensive workflows



(e.g., lesson planning), and enabling new means of instruction (e.g., co-pilots). Higher education has been quicker to explore Al, with early product applications seen within teaching & learning (e.g., chatbot tutors, Al-powered research tools), and student services (e.g., chatbot counselors). Higher education institutions are also early in their exploration of Al in improving student lifecycle engagement – with emerging use cases in admissions pre-screening, enrollment management and predicting risk in student retention. ³

Within K-12, while many districts already use platforms with some Al-enabled personalization and adaptivity, our research indicates that less than 25% of districts use non-curriculum Al applications. Our research also suggests that teacher-focused applications (e.g., lesson plan development, feedback and grading tools) will be a priority due to increasing workloads, alongside student-focused applications (e.g., virtual tutors). Our research indicates that both types of applications are seen as effective by district decision-makers and are expected to receive more district budget allocation over the next two years. Notably, ~60% of districts find teacher-focused Al applications effective and plan to increase spending on them. Similarly, ~50% find student-focused applications to be effective, and plan to increase spending on these.

Student facing generative AI applications (e.g., ChatGPT, StealthGPT, YomuAI, etc.) are being used at scale by both K-12 and higher education students and many have moved towards monetization; this space remains fragmented, and we may experience the emergence of clear market leaders who differentiate through quality control (i.e., hallucinations) and simple UI/UX.⁴

An interesting corollary is emerging alongside the personalized learning theme. Not only will AI transform how students learn – it also stands to change how educators measure learning progress.

OLIVER WYMAN

We think one of the highest potential applications of AI across K12 and higher education is in assessment to ensure learning outcomes and maintain academic integrity / prevent cheating. Generative AI is a breakthrough tool that is here to stay but it has the potential to subvert learning (both intentionally and inadvertently). We think that is going to increase the importance of assessment in learning and to be most effective, these will need to become more adaptive to content / context and real-time. AI is ideally suited for these applications.

"The potential for AI could be significant – particularly as it relates to further personalizing and driving more engaging student learning experiences, saving faculty time in labor-intensive workflows and enabling new means of instruction."

McKinsey



Higher Education's Evolving Value Proposition Meet the Needs of Today's Students

Under the pressure of shifting demographics, student opinions and cost pressures, higher education seems to be at somewhat of a crossroads. Now more than ever, institutions are being compelled to articulate and prove their value propositions. Students are expressing increasingly high expectations of higher education. Will higher education be able to evolve and meet them? Time will tell – though it seems change is no longer optional for many institutions.

MCKINSEY

COVID-19 disruption on higher education has been durable. Structural changes such as institutional consolidation and the federal loan repayment pause have impacted student decision-making, while student preferences (including an increasing preference for vocational programs, short-term credentials and online learning) have fundamentally reshaped the student experience. Reflecting on these changes, three major trends related to student experience are emerging.

First, despite lower engagement and increasing mental health challenges⁵, students have shown resilience, with fall 2022 results showing higher persistence (76.5%) and retention (68.2%)⁶ – both of which are at their highest point in the last decade. Second, students increasingly show flexibility in their educational choices and engagement. Nearly 50% of students now favor hybrid and fully-online instructional formats, and enrollment in undergraduate certificate programs is up nearly 16% compared to prepandemic.⁷ Finally, the student body is more diverse than ever, with changes in non-traditional,

international and dual-enrollment students as well as increasing ethnic diversity – making equitable outcomes (both academic and not) an imperative. To compete for enrollment in an increasingly challenged environment, higher education institutions must adapt to the evolving needs of students. Institutions will need to offer high-quality experiences across various modalities (e.g., online, hybrid, in-person) and programs (e.g., bachelor's, bootcamp, certificate) for students of diverse backgrounds while maintaining retention and completion if they are to effectively attract students.

That said, despite the common narrative of a crisis in confidence⁹ within higher education, its value proposition remains strong. Concerns about skyrocketing attendance costs could be overstated; over the past decade, net cost increases (1.7% annually) have lagged inflation (2.5% annually), with 86% of students at 4-year institutions receiving some grant or scholarship aid in the 2021-22 academic year.¹⁰

The idea that all students face higher debt burdens and uncertain job prospects is similarly unsupported. Median student debt for those with federal funding has stabilized and slightly declined (~1.8% annually) since 2017, with undergraduate debt default rates dropping even more rapidly. Regarding job prospects, the unemployment rate for college graduates (2.4% in June 2024) is 40% lower than that of all workers (3.8%) and for recent grads 4.5% unemployment lags same-age cohort of young workers by over 2%.¹¹ Of course the story is different



for different subgroups of students, but the overall narrative of higher debt burdens and job uncertainty is not consistent through cohorts.

Meanwhile, median wages for college graduates are nearly 3x higher than those of high school graduates, and wage growth for recent graduates has outpaced debt growth. To be sure, higher education institutions more than ever must individually address sticker shock and demonstrate their distinct value proposition to students – but the opportunity enabled by a bachelor's degree remains compelling.

OLIVER WYMAN

The U.S. higher education sector is becoming more competitive as the target population flattens and is about to enter a slow decline. Higher education institutions are responding to this dynamic by improving on the basics: evolving their value proposition, improving their differentiation, becoming more targeted with their marketing and enrollment efforts, ensuring students graduate and find jobs, increasing administrative effectiveness and efficiency / upgrading technology infrastructures, engaging their alumni and expanding into new markets (continuing education / workforce development, international students, etc.).

This is creating a fertile investment environment as they are turning to product and service providers to help them achieve these objectives. And they are willing to pay for high quality services, because each additional student recruited or retained, is meaningful from a revenue perspective for the university. Some of these categories are in the early stages of development with significant growth opportunities.

As is the case when many macro themes unfold, consolidation is a distinct possibility. We share our participants' sense that major changes are coming to higher education, and it's anything but guaranteed that all institutions (or types of institutions) will survive the upheaval.

WHITEBOARD

We feel like we've been saying this for years, but it continues to feel like the higher education market is on the precipice of substantial change. COVID created a lot of noise around this change. Many schools faced existential questions in 2020 but were not forced to make changes when pandemic relief funding followed quickly (though some schools did make changes). Many schools are facing those questions again this summer as they come to grips with a smaller application pool resulting from this spring's FAFSA turmoil.

"This is creating a fertile investment environment as they are turning to product and service providers to help them achieve these objectives. And they are willing to pay for high quality services, because each additional student recruited or retained, is meaningful from a revenue perspective for the university."

- Oliver Wyman



On a more macro scale, the shift we see coming is a consolidation towards the two ends of the university spectrum – exclusive schools and large schools (a large school may have an exclusive school within it, but there are no large, exclusive schools).

This is a change virtually every other industry has undergone as digital adoption grows.

Consumers can find more and more information about each individual offering, which pushes providers towards competing on differentiation or cost. In U.S. higher education, we have both low-cost providers and differentiated providers – the missing element was product transparency and a preference for a local campus. As students choose to complete more of their degree programs online, product transparency should increase and local preference should decrease.

EYP

Although there has been a bit of relief for higher education enrollments, the medium- and longterm enrollment picture remains challenging, with demographics continuing to be a drag. Even if there is a rise in unemployment, which has historically driven greater enrollments of adult learners, we anticipate that the availability of non-degree-based, more career-connected options may mute that effect. Solutions to attract, retain and engage students will be prioritized over other software tools.

We are almost certainly entering a period of cost reduction for most higher education institutions, and we are likely to see increasing levels of collaboration between institutions, including full merger and acquisition activity.

Cost savings will not be enough for most institutions, so we anticipate even greater need for institutions to sharpen their value proposition, either through pricing or enhancing the value delivered. Those institutions that can make greater connection to employment at higher levels of efficiency should be successful. This also has implications for vendors to schools, which will need to enable these successes.

"Cost savings will not be enough for most institutions, so we anticipate even greater need for institutions to sharpen their value proposition, either through pricing or enhancing the value delivered."

- EYP



Will the Election Be a Factor? How Education is Operating Amidst Political Uncertainty

The approaching U.S. presidential election is dominating headlines and creating a complex environment for business, dealmaking and planning alike. Our participants share a few topline thoughts on how education is navigating these evolving times.

STAX

Risk management is the overarching concern with this year's upcoming election. From our perspective, trust in public institutions, including schools, has eroded. Getting through the election without stepping into controversy is the goal for many educational institutions. The election may affect state funding to a certain degree, but above all else, schools are focusing on their ability to stay nimble in the face of political and geopolitical turbulence. As a result, the top concern for schools is creating agile game plans that allow them to stay neutral and foster inclusive cultures.

"Getting through the election without stepping into controversy is the goal for many educational institutions."

Stax

WHITEBOARD

Right now, the impact is uncertainty. The DNC and RNC, of course, have substantially different education platforms. But the truth is that huge swaths of the sector really aren't that likely to be

impacted by what are – if history is a guide, with a few notable exceptions – most likely to be nominal market impacts.

Nevertheless, there is always a chilling impact on transaction activity around election season, and smart money is already beginning to take a "wait-until-after-the election" approach. Which is unfortunate, because the impacts are – again – likely to be minimal in most cases.

Overall, we are still sussing out how shifting national politics will translate into actual policy. It is not clear that a Harris Administration would simply extend Biden policies and priorities. And no one really knows what a Trump Administration would choose to prioritize.

OLIVER WYMAN

There are certainly different philosophies in play that could impact both sectors. Here are some predictions of policies under Democrat vs. Republican administrations:

- Continued financial subsidies for individuals to attend higher education vs. marketbased private loans likely shifting demand to programs with better employment outcomes
- Continued regulatory pressure on for-profit higher education, encompassing OPMs and enrollment services (though the Chevron ruling may mute this) vs. relaxed regulations supporting innovative solutions
- Potentially another round of federal support for K12 to confront continued learning loss vs. local politics shaping responses



What's Next in Education? Emerging Themes with Investment Potential

To describe the present as "interesting times" for education may be a material understatement. There is a tremendous amount of innovation and all-around change waiting in the wings. Education is one of the most talked-about spaces in the public and investor communities – so, what isn't being talked about, but should be? Our participants share their thoughts on themes that deserve a close eye.

WHITEBOARD

We don't really know what to do with school buildings. Fifty to 100 years ago, towns across the U.S. spent tons of money investing in public school infrastructure. Most of these buildings were designed for a single use case – educating traditional learners in a one-to-many model.

So many things have changed since then. Most schools have evolved / are evolving towards more project- and competency-based work. Some are even adopting job integrated curriculum. There is a renewed wave of interest in school choice that often doesn't / can't leverage public infrastructure.

What's more, much of this infrastructure has aged past its intended lifespan, the subject of deferred maintenance and inflexible (and occasionally harmful) material choices. It will take an enormous amount of funding to bring our school facilities up to modern standards. We do expect it to happen, and we're curious to see what blend of public and private dollars it takes to get there.

EYP

With education having the highest conference-to-actual-size-of-sector ratio, there aren't a lot of topics that aren't being talked about. That said, a few themes stand out to us.

While demographics aren't necessarily destiny, they sure do drive a lot of outcomes. From early childhood to K-12 to higher education, the reality is that the surge of learners that buoyed the sector for more than a decade is ending and without significant changes to birthrates or immigration policy, we're unlikely to see that let up. Across the sector participants need to sharpen the value proposition and execution to thrive in an increasingly competitive market.

Specific to K-12, scheduling is the white whale for getting to real impact – otherwise we're essentially rearranging deck chairs around the edge of what schedules have set for the internal plumbing of the system. From a K-12 policy perspective, choice is coming to Republican states at a minimum, and that will drive different behaviors on the part of districts and schools. Meanwhile, in higher education, sharpening the connection to employment will continue to be a critical element of success and focus.

Outcome measures are out of fashion, but as education leaders look to do more with less, the debate always comes back around to what is working. Outcome measures from assessment, graduation rates and employment success are



all likely to swing back in favor. Finally, as we potentially see a loosening of the labor market, we'll see some shifts in where the value of enterprise training and lifelong learning actually is realized.

STAX

Al is top of mind, obviously, but we believe that creating and using generative Al applications to provide a more customized journey for students in learning and career planning will be the most productive use of generative Al in enhancing the student experience. In its current state, there is massive whitespace in developing technology solutions that offer prescriptive solutions to students' wants and needs. For example, in the context of higher education, students often have a general idea of their career goals post-college (e.g., medical school, marketing at a Fortune 500

CPG company, investment banking, etc.) but lack direction in the necessary steps to achieve those goals.

Many universities possess an abundance of course plans, club details, alumni connections, and leadership opportunities. These academic institutions are beginning to leverage their historical data within LLMs. Ideally, they will be able to create clear action plans to help students understand the various paths they can pursue and the resources available within their university. While many higher education institutions are in the pre-discovery phase of creating LLMs that utilize their internal data, some universities have taken the initiative to partner with software companies (e.g., the University of Michigan partnering with OpenAl to create a generative Al model using university data).



Connect with Our Team

Since 2004, Baird's Knowledge Solutions team of dedicated investment banking and institutional equity research professionals have been actively covering the sector. Today, our coverage spans the education lifecycle – from early childhood education to professional training and compliance – and reflects experience across a wide range of business models including traditional and online schools, digital content / assessments, professional skills development / CE and workflow software-based enterprise solutions.

We welcome the opportunity to discuss the these themes and how Baird's Knowledge Solutions team can assist your business growth and strategic objectives.



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¹The New York Times, ²The Social Institute, ³Forbes, ⁴Forbes, ⁵American Psychological Association, ⁶National Student Clearinghouse, ⁷Inside Higher Ed, ⁸Inside Higher Ed, ⁹Gallup, ¹⁰IPEDS. ¹¹New York Federal Reserve. ©Robert W. Baird & Co. Incorporated. Member SIPC. MC-1413901.