TRANSFORMING EDTECH BUSINESSES WITH ARTIFICIAL INTELLIGENCE:

5 Ways Quantiphi Helps EdTech Companies Gain a Competitive Edge

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In a 2023 report from EDUCAUSE, a panel of 62 education experts ranked both "generative AI" and "AI-enabled applications for predictive, personal learning" as the top two trends they believe "will have the most influence on the future of teaching and learning." These technologies offer powerful new capabilities to enhance the personalization of learning platforms, streamline the learning process for students and teachers alike, and ease the workload for administrative services.

While these technologies have the capacity to revolutionize education, their complexity and lightspeed evolution make solutions difficult to develop. That's why EdTechs have been turning to Quantiphi—to help accelerate their time to market.

Quantiphi is an award-winning, AI-first digital engineering company with deep experience helping companies develop and launch products and services to transform the educational landscape. By combining Amazon Web Services (AWS) cloud expertise and cutting-edge AI research, Quantiphi gives EdTechs the market edge they need. The following five use cases demonstrate some of the innovative ways Quantiphi is leveraging AI technology to help EdTechs break new ground in solving their customers' problems.

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USE CASE 1

Building a Real-Time Recommendation Engine for a Major K-12 Publisher

A renowned U.S.-based publisher of K-12 educational content and digital learning platforms had relied on a third-party "recommendation engine" to support its products. This engine interacted with students in real-time, recommending appropriate exercises to individual students based on their historical interactions with digital curriculum. The goal was to supplement and remediate student learning, but the existing tool operated as a "black box," leaving the publisher unable to control or modify its functionality.

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To remedy this, Quantiphi helped the publisher build its own proprietary recommendation engine using deep-learning techniques to provide students with a more customized learning journey. The new solution allows for greater specificity in its recommendations while also giving the publisher more control over its implementation, including:

Recommendations for hyper-personalized learning materials

Knowledge-tracing models that track a student's progress and adapt recommendations as needed

Improved student learning outcomes from more personalized remediation

Reduced dependency on a third-party tool with costly licensing fees

With Quantiphi's new solution, the company was able to take control of this important tool for enhancing student outcomes. The end result? Improved accuracy and relevancy of its learning prompts for students, aligning them with better content for a highly individualized learning journey.

USE CASE 2

Developing a New Web Application for Online Tutoring

The mission for an educational nonprofit organization was to work with communities and schools to help students achieve grade-level reading proficiency through data-informed, curriculum-driven, one-on-one tutoring. Driven by the need to virtualize their entire operation overnight during the COVID pandemic, they cobbled together an inefficient solution using standard video conferencing tools and spreadsheets for scheduling tutors. Users had trouble navigating these mechanisms efficiently, and administrators were limited by their functionality.

The nonprofit turned to Quantiphi and AWS to build an entirely new system to support students, tutors, and administrators. Their target features for improved video-conferencing included:

- Intuitive, seamless lesson sharing and "breakout rooms."

- Multimodal input from students, beyond regular video or text chat.

- Autonomy for tutors to set up their own sessions, including recurring sessions.

- Integrated reports and dashboards to track student progress.

- Automated alerts and mass messages to all participants and their families.

- Two-way interfacing and integration with other applications, such as Salesforce.

Via the new app, which was also built to be ADA compliant, tutors can now schedule their own lessons, easily share content during lessons, and create breakout rooms. Students leverage new interactive features, such as drawing on the screen or flipping through flashcards. From the admin perspective, the app has lifted the burden of micromanaging scheduling and mass communications.

But these features are just a starting point. Quantiphi envisions incorporating AI-based tutors within the web app for increased flexibility in scheduling and student-centered learning. With an increasing demand for individualized and differentiated learning to meet all students' needs, Quantiphi's AI-based tutors offer a powerful option to meet students where they are.

USE CASE 3

Transforming a Repository for Digital Lessons

Self-guided digital lessons and assessments have become a staple of coursework in higher education, but if the platform's functionality is limited, so are the learning gains. When a multinational STEM and research-focused academic publisher realized its homework engine was not yielding effective long-term learning, the leadership sought a new solution.

The old engine relied on video tutorials to deliver content, paired with questions for assessment. However, instructors found the preloaded videos were poorly organized within the repository. Even worse, the mandatory paired questions were misused by students—answers could be easily found without a student watching and internalizing the whole lesson.

The EdTech needed a custom platform that offered enhanced functionality for instructors and a more authentic learning experience for students. Specifically, the publisher wanted:

- The ability for professors to upload their own videos to a repository.

- A system to tag and find videos via AI-assisted intelligent search.

- Video transcription.

- A simple UI for content moderation.

- A dashboard to display video metadata.

Seeking an AI- and ML-based solution that would meet these needs, they turned to Quantiphi. Quantiphi proposed a new homework engine that accommodated all these features—and more. The solution was a backend API to support server-side operations such as uploading videos, configuring learning objectives, and aggregating ratings for videos. The platform used AI-assisted technology from AWS to assist with tasks like transcription, video processing, storage, and usage insights.
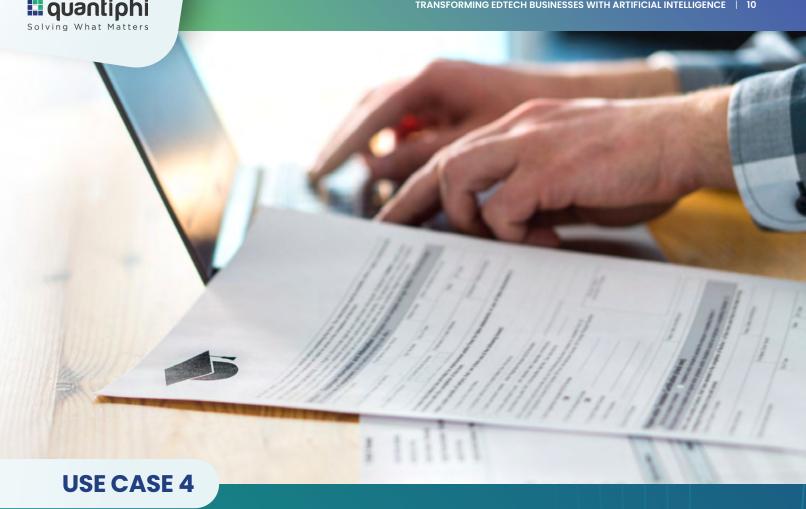
The proposed prototype was designed to increase the adoption of instructor-managed curricula and media, authentic assessment scores for students, and—most importantly—long-term student retention of instruction. Potential benefits to this new instructional platform included improved alignment between the instructor's course plan and supplemental videos or other content students needed to achieve success—all driven by AI- and ML-powered architecture.

Digital platforms for self-guided lessons are not new, but if they don't leverage the latest technology, they may fail to offer a robust learning journey. The depth and breadth of a revised engine required Quantiphi's collective experience and expertise in AI technology.

USE CASE 4

Accelerating the Processing of Student Transcripts and Certifications

One EdTech company, which provides document evaluation and translation services, was struggling with the inefficiencies of their legacy software. Colleges and universities contract with the company to pre-screen student application documents, handling a staggering 1 million international transcripts and diplomas annually. Over time, the various steps in translating, reviewing, and filing these documents—many of which were still completed manually—had become cumbersome, leading to long wait times and inaccuracies. The problem had become so acute that the EdTech's business model was no longer sustainable. To regain profitability, they needed to modernize their workflow with automated processing software.

Enter Quantiphi—and their Intelligent Document Processing Solution, QDox. QDox uses generative AI, powered by AWS, to process documents quickly and accurately. With the sheer number of records the EdTech needed to interpret, evaluate, and process, anything short of an AI-powered automated application wouldn't cut it. But with Amazon Translate handling the translation of 84 languages, the provider easily ensured every transcript or diploma would receive efficient, accurate, and reliable translation.

With Quantiphi's help, the EdTech was able to achieve:

- Over 90% accuracy in detecting scripts from non-English transcripts.

- A vastly reduced turnaround time per document: from three days to about five seconds.

- Automated interpretation of, and response to, detected images.

- Increasingly accurate handling of data from lower-quality images.

Thanks to "active learning," which means the program learns from manual live updates, QDox is also constantly improving its accuracy for clients. Now, the EdTech has a workflow that doesn't rely on human input for mundane tasks. Their employees can dive deeper into the tasks that truly call for their expertise, while Quantiphi's proprietary solution handles the information processing at a rate that simply wouldn't be possible otherwise. The greatly reduced time-per-document has allowed the company to transition toward a more profitable business model and improved customer satisfaction.

USE CASE 5

Generating Targeted Reading Content for Schools

An EdTech company that provides student reading assessments for school systems was looking for a way to improve the process of generating appropriate reading passages. Under their old system, content writers had to consider nine criteria for every passage—including being at the correct reading level, discussing an appropriate topic, and pulling in relevant skills—and the content also had to comply with states' unique educational standards. The task was time-consuming for staff members, resulting in long turnaround times for school customers.

The EdTech turned to Quantiphi for a solution to automate this inefficient process. They needed a system to rapidly identify content aligned to various reading levels and a range of ever-evolving criteria. By utilizing generative AI, Quantiphi was able to develop a solution that solved all of these challenges. Quantiphi's solution leveraged Large Language Models (LLMs), including Amazon Titan and Anthropic Claude, to quickly produce reading passages aligned with the needs of any school, district, or state.

However, identifying targeted reading passages was just the first step. Quantiphi is now helping the company engineer prompts that will produce original reading content, catered specifically to any given criteria and parameters. Because of how quickly these models can produce content, team members called "prompt engineers" can adjust their input on the fly, iterating upon the passages as needed. The content can also be revised for various reading levels or learning goals with simple adjustments to the prompt, increasing flexibility at minimal cost. Plus, the passages require less proofreading, given the mechanical accuracy of today's LLMs.

The result? Increased agility and productivity for staff members, allowing them to serve more customers with appropriate content quickly and compliantly.

Leveraging AI To Serve Customers Faster and Better

According to the National Center for Education Statistics (NCES), more than 70% of schools reported that their faculty used technology in the classroom to a moderate or large extent, and half said their faculty's work would not be possible without it. Digital technology is already a staple of how classrooms and schools function, and its prevalence will only continue to increase.

In this landscape, maintaining their applications' competitive edge and ensuring their products continually add value for users is critical to the growth of an EdTech's business. By leveraging Quantiphi's expertise in designing operational improvements, application upgrades, and new products with cutting-edge AI and ML technologies, EdTechs can modernize their business models and stay ahead of the technology curve to serve the needs of their end customers—faster and better.

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Quantiphi builds custom solutions, powered by the latest AI and ML technologies, and adaptable to an existing product suite, empowering EdTech companies to support any school's educational mission. What problems can we help you solve? **Get in touch with us today to learn more.**