

How Construction Drones Can Inspire the Next Generation of Builders

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The construction industry is currently grappling with a significant labor shortage, with approximately 300,000 job openings in 2023 – a figure that has continued to grow over the past year. This shortage isn't just a challenge for the industry; it's a potential crisis for the broader economy. As the demand for infrastructure projects grows and the existing workforce ages, the lack of skilled labor threatens to slow economic growth, delay critical projects, and increase costs across the board.

This gap between labor demand and supply highlights the urgent need for innovative approaches to attract and train new talent. One promising solution to attract talent lies in the integration of drone technology into K-12 education. By introducing students to the building, flying, and coding of drones, educators can spark early interest in construction careers and equip the future workforce with essential skills. Drones offer a unique intersection of technology and hands-on learning, making construction more relatable and attractive to students who might not have considered it otherwise. This is more than just a tech upgrade; it can transform how young people perceive and engage with the construction industry, bridging the skills gap with tools that resonate with today's digital natives.

THE ROLE OF DRONES IN MODERN CONSTRUCTION

Drones have become indispensable tools across various sectors of the construction industry, from jobsite surveying and



project monitoring to safety inspections and more. To feed the construction workforce pipeline, we must lean into real-world examples of how drones have already led to cost savings and increased safety on construction jobsites. Drone use has also improved accuracy in jobsite assessments, reduced material waste, and provided better monitoring of hazardous areas to protect workers. Companies that use drones for progress monitoring have reported a reduction in project time by up to 20%, according to Aerial Decisions. Drones have also enabled a reduction in workplace accidents – especially those related to falls, which account for 34% of fatalities in the construction industry.

The ability to capture high-resolution aerial images and real-time data has also transformed traditional construction

methods, making processes more efficient and accurate. For students, this presents a unique opportunity to engage with cutting-edge technology and witness the tangible impact of their work on real-world projects. Moreover, as the construction industry faces an aging workforce – with nearly 40% of workers aged 45-64 and a significant portion expected to retire within the next decade – the need to attract younger talent becomes even more critical. Drones offer a way to make the industry more desirable to today's youth, who are more likely to be drawn to careers that integrate advanced tools and technology.

OVERCOMING HURDLES TO IMPLEMENTATION

While the integration of technology like drones into education holds great promise, it is not without challenges. Schools may face financial and resource constraints when implementing new technology-based programs. Addressing these challenges requires a collaborative effort between educators, construction industry leaders, and policymakers to ensure that students have access to the necessary resources and support.

Beyond integrated curriculum and hands-on learning, the construction industry can also double down on providing scholarships to students interested in pursuing higher education in related fields. Scholarships can be tied to specific programs. Similarly, construction organizations may consider sponsoring design and building competitions for middle and high school students. Challenges could include designing a sustainable building or creating a digital model of a construction project using tools like building information modeling (BIM).

BUILDING STRONGER CONSTRUCTION DEI

Additionally, there is an opportunity to boost diversity, equity, and inclusion (DEI) within the construction industry by introducing drone technology and construction career paths to a broader range of students, including underrepresented groups.

Drones require a blend of technical skills, problem-solving, and creativity. By incorporating drone education into K-12, schools can provide students from diverse backgrounds with hands-on experience and technical knowledge. This can break down traditional barriers to entry in construction, a field often seen as requiring physical labor, by highlighting roles that focus

on technology and innovation. Drone education in classrooms also emphasizes collaboration, teamwork, and project-based learning, which fosters inclusive environments where students of different backgrounds and abilities can thrive.

Programs encouraging young women to explore careers in construction through tech can also play a crucial role in addressing the industry's gender gap. The tech-centric nature of drone work can attract more female students to the industry, a field where women have been historically underrepresented.

FORMING PARTNERSHIPS TO ENGAGE STUDENTS

Hands-on experiences with technology can demystify the construction industry, showcasing its technological aspects and broadening students' horizons. Activities such as mapping construction sites, assessing structural integrity, and planning logistics with drones demonstrate the practical application of the skills students are already learning in their classrooms.


To maximize the impact of drone technology in construction education, it is essential to establish strong partnerships between construction companies and educational institutions. For example, engaging with school districts to introduce drone programs and demonstrate their relevance to construction can highlight the benefits of such programs in preparing students for future careers. Collaborating with district administrators to integrate drone technology into existing curricula ensures that students gain practical experience and industry-relevant skills.

These partnerships help create a seamless connection between education and industry, paving the way for students to transition smoothly into the construction workforce. A strong example of a construction industry partnership leveraging drone technology at the high school level is the Allied Construction Industries (ACI) K-12 programs. These programs are designed to connect students with careers in construction by integrating applied STEM skills, career exploration, and industry-recognized credentials into school curriculums. Through partnerships like the Construction Career Advocacy Program (CCAP), ACI collaborates directly with schools to establish career pathways, including opportunities in jobsite mapping, inspections, progress tracking, and drone operation. The program helps build a pipeline of skilled workers by providing students with real-world, hands-on learning experiences in both classroom and jobsite environments.

TODAY'S CLASSROOMS, TOMORROW'S CONSTRUCTION

Integrating drone technology into K-12 education offers a promising pathway to address the construction industry's labor shortage. By engaging students with drones, we can showcase the tech-enabled nature of modern construction, solve real-world problems, broaden career horizons, and inspire future innovation.

For those interested in learning more about incorporating drone technology into construction education, several resources are available. The Association for Unmanned Vehicle Systems International (AUVSI) provides guidelines and best practices for using drones in education. Additionally, the Construction Industry Institute (CII) offers resources on workforce development and the integration of technology in construction. Providers can also partner directly with schools and districts to provide drones, accompanying curricula (including construction-related lesson plans), and professional development for educators and administrators.

To effectively address the construction industry's labor shortage and propel its evolution, it is crucial to invest in initiatives that integrate hands-on technology into educational curricula, leverage industry supports, and prepare a future workforce that is well equipped to navigate and thrive in the evolving landscape of construction. 



About the Author

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