Utah Valley University and the Role of Artificial Intelligence in Higher Education

A Visionary Approach to Learning and Innovation

# Overview and Origin

Utah Valley University (UVU) has a distinguished history dating back to the early 1940s. Established in 1941 as Central Utah Vocational School (CUVS), the institution was founded to address the need for vocational training during World War II. Initially, it focused on providing practical skills to support the war effort, offering courses in welding, aircraft mechanics, and radio technology.

Post-World War II, the demand for vocational training persisted, leading to the renaming of the institution in 1947 as Utah Trade Technical Institute (UTTI) to reflect its expanded curriculum. The post-war era ushered in significant growth and development, with the school diversifying its programs to include business, health sciences, and construction trades.

In 1963, the institution transitioned to Utah Technical College at Provo (UTC), marking the beginning of its evolution from a purely vocational school to a broader community college. This transformation continued in 1977 when the college relocated to its current site in Orem, Utah. The new campus provided enhanced space and resources, facilitating the expansion of its student body and programs and underscoring the institution’s commitment to serving the educational needs of Utah County and surrounding areas.

The year 1987 marked another pivotal change when the institution was renamed Utah Valley Community College (UVCC), reflecting its development into a comprehensive community college. UVCC expanded its academic offerings, faculty, and facilities, emphasizing accessible and affordable education for a diverse student population.

A significant milestone was achieved in 2008 when the institution became Utah Valley University (UVU), symbolizing its ongoing growth and expanded academic mission. UVU began offering master's degree programs and significantly enhanced its research and academic capabilities.

UVU is funded approximately 23% by tuition and the remainder comes from state funds and grants.

# Business Activities and Landscape

Today, UVU stands as the largest public universities in Utah, serving over 45,000 students. This is largely due to an extensive range of programs, including associate, bachelor's, and master's degrees across various fields of study. UVU is recognized for its commitment to engaged learning, providing students with hands-on, practical experiences that prepare them for successful careers.

Due to the growth some of the challenges that UVU faces in trying to maintain the institutional mission are:

1. General growth: UVU would like to continue growing the program however, does not want to lose touch with the individuals of each student and maintain a community, local school feel.
2. Wide range of academic levels: UVU provides such a wide range of educational opportunities from certificate level to graduate degrees across over 100 programs and strives to meet each student wherever they are on their academic path, where these differ greatly.
3. General National trend of declining enrollment: there is a national tend of declining University enrollment due to costs and a perceived disconnect between what is being taught and the “real world”. It is important to keep costs down while keeping the educational programs relevant.

**Who does UVU Serve?**

According to the UVU student body is evenly split between 50% male and 50% female students. Additionally:

* 36% are first generation college students
* 51% work at least 21 hours per week while attending UVU
* 32% are aged 25 or older
* 40% are married or in a partnership
* 17% support at least 1 child
* 80% are employed
* 19% are persons of color.

Utah has 16 state-funded higher educational institutions. UVU stands out due to its location in fast-growing Utah County, diverse academic programs, open enrollment, and concurrent enrollment options for high school students.

**Measures of Success**

Common measures of success for UVU and similar educational institutions are:

1. Enrollment
2. Retention
3. Graduation
4. Post Employment

Here is how UVU is currently tracking on these measures of success according to it’s website:

UVU’s enrollment is also on a steady increase enrolling a record number of 46,809 students for the 2024 fall semester, an increase of 4.83%. (https://www.uvu.edu/news/2024/10/uvu-enrollment-for-fall-2024.html)

In May 2024, Utah Valley University (UVU) achieved a 46% graduation rate, which is two years ahead of its original goal. UVU’s original goal was to increase it’s eight year completion rate from 37% to 45% by 2025. The national average for undergraduates at public institutions is 63%. UVU also had one of its largest graduating classes in May 2023, with 8,517 students receiving degrees and certificates. (<https://www.uvu.edu/news/2024/02/2024_02_14_graduation.html>):

**Technology at UVU**

UVU supports 45,000 students and over 5,000 faculty and staff with a diverse technology stack. This includes recruitment CRMs, Canvas LMS, financial management software, auditing software, Power BI, payment processing systems, student mobile apps, and more. The technology at UVU operates like a small city, also supporting police/security, retailers, facilities, sports organizations, and community events.

# Use of AI at UVU and Recommendations

Utah Valley University (UVU) is at the forefront of integrating artificial intelligence (AI) into its educational framework, demonstrating a commitment to innovation and excellence. By leveraging AI technologies, UVU aims to enhance the learning experience, streamline administrative processes, and prepare students for a future where AI plays a pivotal role across various industries.

## Current Initiative: TA in a Box

## TA in a Box Pilot - is a compact learning tool that enhances student learning anytime, anywhere. It aggregates various app sources for class information, assignments, lectures, and announcements. Faculty benefit from an intuitive GUI that requires no complex setup, allowing quick class integration. This web app integrates with mobile apps, intranets, and websites via a clickable button. While it interfaces with Azure for functionality, content management relies on Canvas or UVU data systems. Any updates sync automatically with Canvas. TA in a Box is now in its second version deployed in 10 of the top courses. Fall of 2025 TA in a Box will include several features:

* A conversational chatbot that leverages natural language processing technology to maintain a conversation with students as if it were their very own tutor.
* Deep dives into lecture topics, allowing students to explore detailed information on specific topics covered in their class lectures.
* A question history feature that maintains a brief history of the questions asked by students for easy reference and follow-up.
* Clearer presentation of information, with improved display for clarity and ease of reading

## Recommendations

## Administrative Efficiency

One of the top recommendations for UVU is to increase administrative efficiencies by employing AI to optimize its administrative functions.

**The adoption of chatbots** and virtual assistants to handle routine inquiries can free up administrative staff giving them time to focus on more complex tasks and on student needs. Although there have been some attempts to introduce chatbots and virtual assistants, they have not been readily adopted due to underdeveloped chatbot technology and lack of training. The recommendation is to develop more sophisticated AI tools and provide sufficient training to decrease resistance to these types

## Research and Development

**Using AI systems to analyze data** to improve resource allocation, predict enrollment trends, and enhance overall operational efficiency. This is likely one of the best advantages to manage the growth tactically and prepare correctly for the size of the student body.

The university's commitment to AI extends to research and development. UVU faculty and students are engaged in cutting-edge AI research, exploring areas such as machine learning, natural language processing, and robotics. These efforts not only contribute to the academic community but also position UVU as a leader in AI innovation.

# Future AI Initiatives at UVU

## AI-Powered Smart Campus

UVU envisions creating an AI-powered smart campus where interconnected systems enhance the student experience. From intelligent lighting and climate control to security monitoring and predictive maintenance, AI will transform the campus environment, making it more efficient and responsive to the needs of its occupants.

## AI in Curriculum Development

To prepare students for the AI-driven future, UVU plans to integrate AI across its curriculum. This includes offering specialized courses in AI, data science, and related fields, as well as incorporating AI concepts into existing programs. By equipping students with AI skills, UVU ensures that its graduates are well-prepared for the evolving job market.

## Collaborations and Partnerships

UVU aims to foster collaborations with industry leaders, tech companies, and other educational institutions to advance its AI initiatives. These partnerships will provide students with opportunities for hands-on experience, internships, and real-world projects, bridging the gap between academia and the industry.

# The Impact of AI on Higher Education

## Enhanced Learning Outcomes

AI has the potential to revolutionize higher education by enhancing learning outcomes. Personalized learning paths, intelligent tutoring systems, and predictive analytics can help students achieve their academic goals more effectively. UVU's adoption of these technologies will set a benchmark for other institutions to follow.

## Data-Driven Decision Making

AI enables data-driven decision-making processes in higher education. By analyzing vast amounts of data, AI can identify trends, predict outcomes, and provide actionable insights. UVU's use of AI in decision-making will lead to more informed strategies and improved institutional performance.

## Accessibility and Inclusivity

AI can also play a crucial role in making education more accessible and inclusive. UVU's AI initiatives aim to support students with diverse needs, including those with disabilities. For example, AI-powered tools can provide real-time transcription, translation, and personalized learning aids, ensuring that all students have equal access to education.

# Conclusion

Utah Valley University is poised to be a leader in AI-driven higher education. Through its innovative use of AI technologies, UVU is transforming the educational landscape, enhancing the learning experience, and preparing students for a future where AI is ubiquitous. By continuing to invest in AI research, development, and implementation, UVU will not only benefit its students but also set a precedent for other institutions to follow.

In summary, UVU's strategic approach to AI integration exemplifies its commitment to excellence and innovation in higher education. As AI continues to evolve, UVU's initiatives will serve as a model for how educational institutions can harness the power of AI to drive progress and achieve transformative outcomes.

More information to learn more about UVU’s AI initiatives: <https://www.uvu.edu/news/2024/11/applied-artificial-intelligence-institute-announcement.html>

<https://www.uvu.edu/academicaffairs/ai-task-force/>