Transforming higher education
to create the future we want

ASU GSV Summit 2021

Michael M. Crow
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“By failing to prepare, you prepare to fail.”

- Benjamin Franklin
Eighty-year event cycles prompted major design changes
How do we seize this moment to drive significant and enduring human progress?
As part of a broader transformational policy agenda, we propose the [radical
democratization of higher education through technology-enabled design.}
Global access to education and empowerment has been limited by organizational designs and instructional technologies.
Learning enterprise designs would be transformed by the radical democratization of higher education.

- Faculty become a central asset of the university.
- Pedagogical focus of learning-by-doing elevates students to faculty collaborators.
- Boundaries between leadership and faculty provide greater flexibility.
- Concept of “traditional student” changes.
- Revenue sources diversify and include recurrent and subscription-based revenues across learner lifetimes.
- Main differentiator between universities becomes their capacity to develop and deploy educational technologies.
ASU Charter

ASU is a comprehensive public research university, measured not by whom it excludes, but by whom it includes and how they succeed; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves.
National Service Universities aspire to accelerate positive social outcomes through the seamless integration of cutting-edge technological innovation and scalability with institutional cultures dedicated to the advancement of academic enterprise and public value.
Knowledge is the purpose

Knowledge Core
Advancing the pursuit, understanding and sanctity of knowledge, as well as the storage, synthesis, analysis, creation and transfer of knowledge.

Our faculty drives our knowledge creation and builds out our learning realms.
Our faculty is the driver
Our design enables our response under all conditions

**Full Immersion:** Sync-enabled classrooms | Active-adaptive classrooms | Dreamscape Learn pods | Sunnybot | Financial Chatbot | Universal Library Access | Orchard Quad | Inscribe | BioSpine | MathSpine | ASU @ Mesa City Center

**Digital Immersion:** Sync Studio | Innovation Week | Gradius | PASS | Earned Admission | MyPath2ASU | PLuS Alliance | Visiting University Student | TEDI London

**Digital Immersion – Massively Open:** ASU Digital Backpack | Adobe Creative Campus | Slack Faculty Innovation Hub | Inscribe | Universal Learner Courses | Upskilling | Mirabella | ASU For You | Earned Admission | ASU Prep Digital + Universal Learner

**Education Through Exploration:** Alien Zoo | Dreamscape Learn | Creative Commons | Work+Learn | Polar Explorer

**Infinitely Scalable Learning:** Pocket Portfolio | Badgr Digital Credentialing | Study Hall Partnership | Axio

**Math and Science Mastery for All:** Operation Math
ASU faculty collaboration is creating the future of learning

Kenro Kusumi
- Professor, School of Life Sciences
- Dean, Natural Sciences, The College
- Burroughs Wellcome Fund Hitchins-Elion Postdoctoral Fellow, National Institute for Medical Research, Medical Research Council, U.K.
- PhD, Biology, Massachusetts Institute of Technology
- A.B. Harvard College, Harvard University

Anne Jones
- Professor, School of Molecular Sciences
- Vice Provost, Undergraduate Education
- D. Phil. Inorganic Chemistry, University of Oxford, U.K. (Rhodes Scholar)
- B.Sc. Chemistry and Mathematics (summa cum laude), University of the South

Michael Angilletta
- President’s Professor, School of Life Sciences
- Founding Director, Center for Science Learning Innovation
- PhD, Ecology & Evolution, University of Pennsylvania
- BS, Biology, The College of New Jersey

Robert LiKamWa
- Assistant Professor, School of Arts, Media and Engineering
- and School of Electrical, Computer and Energy Engineering
- Director, Meteor Studio
- PhD, MS and BS Electrical and Computer Engineering, Rice University

Ann McKenna
- Professor, Engineering, The Polytechnic School
- Vice Dean, Strategic Advancement
- Ira A. Fulton Schools of Engineering
- Ph.D. University of California-Berkeley
- M.S., BS Mechanical Engineering, Drexel University
Kenro Kusumi

- Professor, School of Life Sciences
- Dean, Natural Sciences, The College
- Burroughs Wellcome Fund Hitchins-Elion Postdoctoral Fellow, National Institute for Medical Research, U.K.
- PhD, Biology, Massachusetts Institute of Technology
- A.B. Harvard College, Harvard University
Pathways across our realms fuel student creativity

Astronomy at ASU

Campus Immersion
On-campus BS
Earth and Space Exploration
- Astrobiology and Biogeosciences
- Astrophysics
- Exploration Systems Design
- Geological Sciences
- Earth and Environmental Studies

Campus Digital Sync

Digital Immersion
133 in one program
Online BS
Astronomical and Planetary Sciences

Digital Immersion – Massively Open
137 students in AST 111

Education Through Exploration
Habitable Worlds

Ininitely Scalable Learning

Knowledge Core
73 faculty / $65.5 M Research
- Center for Meteorite Studies
- Ronald Greeley Center for Planetary Studies
- NewSpace
- MILO Institute
- Interplanetary Initiative
- Cosmology Initiative
- Beyond Center

On-campus BS
Earth and Space Exploration
- Astrobiology and Biogeosciences
- Astrophysics
- Exploration Systems Design
- Geological Sciences
- Earth and Environmental Studies

Online BS
Astronomical and Planetary Sciences
ASU’s diverse STEM online degree programs enable students to follow their interests

Anne Jones

- Professor, School of Molecular Sciences
- Vice Provost, Undergraduate Education
- D. Phil. Inorganic Chemistry, University of Oxford, U.K. (Rhodes Scholar)
- B.Sc. Chemistry and Mathematics (summa cum laude), University of the South
First online biochemistry program expands access and opportunity
Dreamscape Learn increases student engagement through game-changing learning methods
Robert LiKamWa

- Assistant Professor, School of Arts, Media and Engineering and School of Electrical, Computer and Energy Engineering
- Director, Meteor Studio
- PhD, MS and BS Electrical and Computer Engineering, Rice University
Learning Futures Collaboratory: Immersive Creation Studio

students design and launch new launch digital learning tools

Guilds
- Cloud Infrastructure
- Virtual Reality Tooling
- Narrative/Gameful Learning
- Mobile Augmented Reality
- Data Visualization
- Immersive Web Design
- Modeling, Materials, Animation
- Media Production
- Project Management
- UI/UX Design
- Haptics and Physical Electronics

Projects
- Dreamscape Mars
- Creativity Commons Exploratorium
- ASU Digital Twin
- ASU Scavenger Hunt
- Collaboration 360 Huddle
- Career Arcade
- xr.asu.edu
- KER
- Gaia

Available online examples
Ann McKenna

- Professor, Engineering, The Polytechnic School
- Vice Dean, Strategic Advancement Ira A. Fulton Schools of Engineering
- Ph.D. University of California-Berkeley
- M.S., BS Mechanical Engineering, Drexel University
The Ira A. Fulton Schools of Engineering are leading new frontiers in online learning

17 graduate online degree programs
5 online certificate programs
19 graduate online degree programs

Online MBA & MSE in Electrical Engineering
BS in Mechanical Engineering
TEDI London
Looking to the future: AXIO Beta

An intelligent platform for personalized growth and lifelong learning developed by the ASU Luminosity Lab.

The Diamond Age
(Neal Stephenson, 1995)
Looking to the future: RealmSpark

Accelerating educational technology ideas and innovations for the world in support of universal, life-long learning developed by ASU Enterprise Partners.

**Full Immersion:** CogBooks | Muzzy Lane | Coursetune | Vibeffect | Yellowdig
Beagle Learning | Knack | K16 Solutions | ASL Inside | AstrumU | PowerNotes
DeepBench | Ensightful | BioSpine | MathSpine

**Digital Immersion:** InStride | Cintana | CogBooks | Muzzy Lane | Coursetune | Vibeffect | Yellowdig | Beagle Learning | Knack | Quinnicia | ASL Inside | ESL Review | AstrumU | Forage | EX-IQ | Ripen | PowerNotes | Ensightful | Quad

**Digital Immersion – Massively Open:** CogBooks | Forage | EX-IQ | PowerNotes

**Education Through Exploration:** Dreamscape Learn | Forage

**Infinitely Scalable Learning:**
Capacities being developed to democratize higher education

Full Immersion
- 21st century digital learning spaces
- Artificial intelligence-based advising
- Ubiquitous content delivery tools
- Intelligent tutoring platform
- Personalized learning at scale

Digital Immersion - Massively Open
- Technologies that derive value from scale
- Content and delivery for any life stage
- Multi-organizational pathway mapping

Infinitely Scalable Learning
- Infinitely scalable teaching
- Seamless integration of individualized learning across life stages
- Lifelong intelligent tutoring

Digital Immersion
- Technology to support relationships and build organizational affinity
- “Integrated” human-tutor interface
- Real time assessment development-based assessment
- Multi-organizational pathway mapping

Education Through Exploration
- Virtual augmented reality for learning
- Direct human cognition linkages
- Conversation-based AI tutoring
- Group learning tools

Math and science Mastery for all
- Asynchronous learning
- 21st century digital learning spaces
- Artificial intelligence-based advising
- Ubiquitous content delivery tools
- Intelligent tutoring platform
- Personalized learning at scale