Building Information Modeling in Construction Education

Reid Johnson
Program Manager, AEC Education
Presentation Outline:

- ACCE 2yr/4yr
- BIM Full Circle
- BIM & The Cloud
- Success Stories
- Partnering
BIM + Cloud in Construction Education
Technology Outcomes for 2-year and 4-year programs

2-YEAR PROGRAMS: “Demonstrate the ability to use current technology related to the construction process”

2-year program graduates as CONSUMERS

ABILITIES:

Model Walk-Through
Clash Response
Field Report Comment
Technology Outcomes for 2-year and 4-year programs

4-YEAR PROGRAMS: “Apply electronic-based technology to manage the construction process”

4-Year Graduates as MANAGERS

ABILITIES:

- Manage Navisworks Model
- Manage a Project
- 4D Simulation
- Material Order Plan
- Manage a BIM Model
- Perform Take-Off
BIM Full Circle: Building Representation Technology Development
Middle-Ages Building Design

In the Middle-Ages, small scale building models were developed to represent building designs.

Full-scale details were drawn on construction site floors.
Renaissance Building Design

In the Renaissance, scaled drawings were invented – orthographic projections enable accurate representation.

Palladio – Villa Rotunda
Computer Age – In the Computer Age, CAD was developed.
Modern Day - BIM – Building Information Modelling

This stair model changes based on input parameters.
Contractors are now using multi-discipline, intelligent models with relational databases.
“The percentage of companies using BIM jumped from 28% in 2007, to 49% in 2009 and to 71% in 2012. For the first time ever, more contractors are using BIM than architects.”¹

BIM Adoption 2009 vs. 2012


Getting into the Cloud
BIM = CURRENT INDUSTRY STANDARD

BIM + CLOUD = INDUSTRY DIRECTION
360 Eco System – Leverage the Cloud

Classroom
- Clash Detection, Coordination and Collaboration

Individual
- Conceptual Design and Feasibility Evaluation

Classroom
- Field Management, Commissioning, and Handover

Individual
- Energy Analysis

Individual
- Structural Analysis

Individual
- Visualization
The Cloud = Power

SINGLE COMPUTER

COMPUTING POWER

INDIVIDUAL

TEAM POWER
"There are lessons that cannot be taught in the classroom, having to rely on other people is part of the real world."
“BIM 360 Glue bridges the divide between disciplines, it’s a real-world technology that enables us to teach real-world problem solving and coordination.”
“It’s a more efficient way of collaborating. Students spend more time addressing issues rather than trying to comprehend them. Moreover, understanding BIM collaboration gives them a real advantage in the job market.”
Partnership
Partnership

- **Students’ Employability**
  - Software is part of students’ future
  - Helping a student achieve internships
  - What can we give students to prepare for careers of the 21st Century?

- **Industry Standard**
  - BIM is here to stay
  - In some ways, it is getting simpler to use (thanks to cloud technologies)

- **Industry Trend (future of how the industry is transforming)**
  - Looking forward to the cloud
  - Looking forward to construction technology

- **A True Partnership (partners in each other’s success)**
  - Supporting – access to valuable software
  - Collaboration and piloting new technology
  - University & Student Feedback – cutting edge applications
Partnership Tools
#1 – Curriculum for Construction Education - bimcurriculum.autodesk.com

Excel in your design projects

Apply BIM and sustainability practices to real-world designs with Autodesk BIM design software, curriculum, mobile technologies, and cloud rendering services.
#2  – Student Expert Program

http://www.studentexpert.net/

#3  – Pilot Programs

Contact reid.johnson@autodesk.com

#4  – Student Community

http://www.autodesk.com/education/student-software
#5 – Green Building Performance Analysis Certificate

http://sustainabilityworkshop.autodesk.com/bpac

AUTODESK® SUSTAINABILITY WORKSHOP

Engage

Courses
- BPA Certificate
- BPAC FAQ
- How to Register
- BPAC Online Roster

Analysis Awards
- Competitions
- Research Partners
- Events
- For Educators
- Community

Building Performance Analysis Certificate

Are you ready to transform the building industry?

The Autodesk Building Performance Analysis (BPA) Certificate Program is a free, online self-paced educational program, for students, educators and professionals, that will help improve your knowledge of building science fundamentals and Autodesk building performance analysis tools.
Questions?
reid.johnson@autodesk.com