Project Coordination Using Cloud-Based BIM Computing in Education

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Background

• BIM use is rising in the AEC industry.
• 74% of US contractors adopted BIM by 2012.
• BIM technical knowledge and skills have become a necessity for new graduates to find a job.
• The processes in BIM depend heavily on collaboration.
• Avoid wrong conception of teaching BIM as mere software skills.
M.E. Rinker Sr. School of Construction Management at the University of Florida teaches BIM as a collaboration skill in addition to the software competency.

The Construction Information Modeling course (BCN6785) introduces the students to working in BIM as a group to deliver a fully completed project based on As-Built drawings and specs.

The deliverables of the project are:
- A BIM Execution Plan.
- Complete Architectural and Structural Models
- Partial Mechanical, Plumbing and Electrical Models.
- A clash detection report.
- Schedule timeline and flythrough videos.
Students were given the freedom to choose a collaboration platform such as Dropbox, an FTP server or Revit’s Work Sets.

Several problems occurred when using these methods:

- Losing work progress by accidental overwriting.
- Server availability and dependability issues.
- Coordinating between the different disciplines
- Time management
Autodesk BIM 360 Glue®

- A cloud-based service provided by Autodesk.
- Allows users to upload the different disciplines models to the cloud and merge them together in what is referred to as “Gluing.”
- Gives users the ability to collaborate in a unified environment where all team members can access the Glued model without interfering with others’ work.
- Has the ability to run and generate a clash detection report.
- Users can send and reply to notifications about specific issues in the cloud.
Autodesk BIM 360 Glue® Workflow

Figure 1: An overview of the BIM 360 Glue workflow
Learning Outcomes

- Students received the service very positively.
- The main feature of the service use by students was the ability to send and reply to coordination notifications by the different group members.
- The dynamic way of coordinating on a micro level allowed the students to be more efficient, productive and engaging.
Learning Outcomes

Figure 2: Student model of campus research lab
Learning Outcomes

- Using the clash detection tool in the BIM 360 Glue has allowed groups to be more precise and efficient in clearing out clashes between the different disciplines models.
- Users can then redline the applicable clashes and send them to the responsible members for fixing.
- A time-stamped log is also a part of the service where it shows all activities of the project and who performed each activity.
- The log was used to track the involvement and effort by each member of the group.
Learning Outcomes

Figure 3: A highlighted clash in the cloud
Challenges

- Adapting and using a new interface was difficult at first.
- Some students had problems with logging into the service.
- No project management software was used to compliment the higher services provided by the BIM 360 Glue®
- The iPad experience associated with the service could not be fully provided to the students.
The exposure to the BIM 360 Glue® service introduced the students to the latest advancement in BIM deployment technology. Students expressed their excitement and positive experience using the service saying: “Collaboration between disciplines is easy, and cloud access from anywhere is key.” and “BIM 360 Glue represents the next generation of BIM Coordination.” The BIM 360 Glue® increased efficiency and helped students achieve their projects’ goals more effectively. Students were exposed to a higher level of collaboration on construction projects.
Thank you...