

Teaching Teams and Project Management in a Virtual Environment

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Abstract - My signature class is a junior level Teams and Project Management learning experience. An important part of this class is crafting learning outcomes to address changing stakeholder needs, incorporating constantly changing tools for virtual team interaction and project management, and measuring outcomes. This paper provides a snapshot of the current evolution of this class as taught within the ACBSP accredited Northern Arizona University Business and Administration program. Paper content includes best practices in virtual team building; review of current technology to facilitate virtual teams; overcoming BlackBoard Learn limitations; and useful third-party associations. Synthesis of technologies is demonstrated and time-saving macros are described.

Keywords: Virtual Teams, Team Building, Project Management

1 Introduction

With a nod to Six Sigma, TQM, MBO, etc., instructions to and activities for team participants are constantly evolving. An important part of the class is for students to actively critique their learning process during and after [1] The following is an adaption of a snapshot of an evolving scaffold students use as a framework as we cover each area in detail [2].

2 Best Virtual Team Practices

The following should be accomplished by all team members and receive special focus from team leader and project manager.

2.1 Define and contact your team

- Teams may be assigned or self-forming.
- Insure that you have current contact information for all team members.
- Confirm that everyone is aware they are a member of the team.

2.2 Define the goal

- Insure the team is focused on the same and correct goal.
 - If there is anything unclear about the specification, ask the person who defined the product for further specification.
 - Identify major stakeholders and consider their needs.
 - Each team member should state that they understand and agree upon the goal.
- If packaging of the results is unclear, confirm your understanding of what the deliverable should look like with the recipient.

2.3 Define communication tools, method(s), and protocols

Reach a consensus choice of communication tools and procedures. Insure that all team members agree to use the consensus tools and procedures.

- **Tools** Choice of tools depends on member resources including preferences and willingness to learn new communication tools.
 - Teams are likely to need both communication and file sharing tools.
 - It is often desirable to use multiple tools in each category.
 - The ideal tools for a task are not useful if team members cannot or will not use them. Thus, search for tools that all team members will use.
- **Methods** There are two major categories of communication. Most teams will use a combination of these.

- **Synchronous** communication occurs when all team members may interact at the same time. Phone calls and video conferencing are examples of tools for synchronous communication. Synchronous communication is particularly effective for rapid decisions but it requires that the team agree and follow up on a meeting time and method. Unless someone takes notes, typically there is little or no record of synchronous communication.
 - **Asynchronous** communication occurs when team members communicate at different intervals. Email and Bulletin Boards are examples of tools for asynchronous communication. Asynchronous communication is particularly effective when team members have difficulty finding common times to meet. Typically asynchronous communication is automatically recorded for later review.
 - **Protocols** are agreed upon team communication rules. Protocols include:
 - Agreed upon meeting times and tools for synchronous communication. [Robert's Rules of Order](#) [3] are a great way to organize a synchronous meeting. At the very least, a meeting should have and follow an agenda similar to agendas defined in Robert's Rules. Distribute the agenda with enough time for team comments before the meeting. Keep the discussion focused on the issue at hand (motion) and the agenda. There should be a review of assigned tasks at the end of the meeting.
 - Agreed upon tools and frequency of checking asynchronous communication. Asynchronous communication usually involves discussion threads where a topic is introduced and commented upon. For clarity, if you wish to start a new discussion topic, start a new thread.
- 2.4 Define, assign, and set deadlines for tasks. Confirm.**
1. **Define** and assign operational tasks with outcomes to get from where the team is to the desired goal.
 - a. Identify tasks that must be completed before tasks may begin and which tasks may be simultaneous.
 - b. The detail of task description varies. Routine tasks are often grouped. Novel tasks may require a detailed breakout.
 2. **Assign** team members to each task. Double check that every task has an associated team member.
 3. **Set Deadlines** for every task. Pay special attention to when the team goal must be reached and tasks that must be accomplished before others may begin.
 4. **Confirm** that all team members agree to and are willing and able to do their assigned tasks.
- 2.5 Monitor progress**
- **Check** on team member progress at regular intervals.
 - **Agree** on a common area where team members can post their progress, discuss obstacles, and report completed tasks.
- 2.6 Third Party Associations**

In addition to stakeholder focus groups in which our content is reviewed by members of the business community, professional world companies have associations with the class. Many of these companies are probably not aware that our students use their products (see "Selected Resources for Virtual Teams" Balch, 2013c). Here are some notably useful alliances that require partnerships:

- **Google Apps** are essential to the success of this class. The combination of these applications provides strong team coordination and the ability to work on documents without change tracking concerns. *Google+*, *Google Drive*, and *Google Voice* are the most useful apps. Northern Arizona University subscribes to the free Google Apps for Education program.
- **LinkedIn** provides a professional networking area that allows our students and alumni to communicate in a moderated group. LinkedIn also allows us to track student success. Some recent events in our LinkedIn area are notable:
 - An alumni contacted me through the area to announce that he was now in a position of authority and would like an intern from our program.
 - In a recent Teams and Project management class assignment where students were strongly urged (but not required) to create a free LinkedIn account, three students received job offers within a day after creation of their profile.
- We are fortunate to have an alliance with **Microsoft DreamSpark [4]** where students receive a variety of Microsoft Applications at no cost. As a class requirement, students must install and use *Microsoft Project*. Use of *Microsoft Visio* is strongly encouraged.

3 Best Practices

Students complete six projects where they must create a web based presentation. All topics have a business focus. The first four projects have randomly assigned teams of about eight members. For the first four projects, I attempt to form teams composed of members who have not worked together before in the class. The last two projects follow a hiring hall format where leaders declare themselves, ask for team recruits, then leaders choose who they accept.

Parallel to the projects are discussions focused on various aspects of team building and project management. Discussion topics enhance class and departmental objectives. Common student comments include something like, "I recall covering this topic but we never really discussed it."

Upon completion of projects, students peer review their team members including themselves using a rubric (Balch, 2013d)

based Google Form. Students also score and comment on all the projects using a rubric based (Balch, 2013e) . Reviews include a rubric based score and a comment area. Student feedback includes all the comments they made and all the scores and comments made about them for each project.

Lessons learned in Google Forms is to require students to login using their User Id which is automatically required and to require students to select the entity they are reviewing from a drop down list. Failure to force clear data selections creates a data set that needs much review and editing before it is usable.

Even with somewhat clean data, much automation is needed to provide complete feedback. I developed macros to remove duplicate entries and to group responses and package the results into email and web pages.

Students receive individual email after each project including their current class standing and peer comments and scores from the most recent project. Individual responses are shown without reference to the team member who made the comment.

4 References

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5 Appendix 1) Selected Technology to Facilitate Virtual Teams as of March 2013 [5]

The following sites represent the areas I currently find most useful in facilitating teams. This list is constantly evolving and my current preferred applications are found at: <http://oak.ucc.nau.edu/cvb23/hdoc/PresentationResources.htm>

5.1 Cloud Resource Collections

5.1.1 TechSupportAlert

(<http://www.techsupportalert.com/content/best-free-online-applications-and-services.htm>) Best Free Online Resources
Yes
File Sharing / Synch on multiple computers

5.1.2 Box.net

(<http://box.net>) File sharing website. Allows you to upload very large files and provide a link that allows others to download them.

5.1.3 Dropbox

(<http://db.tt/lqetUPA>) Synchronize files on multiple computers. Creates a folder that is automatically synchronized with as many computers as you like. Simply add or update a file and the contents are update on all the other computers. Allows you to revert to earlier file versions. Sub folders can be shared with teams. PS: Use this link to install and we'll both get extra free storage.

5.1.4 Google Drive

(<http://drive.google.com>) Synchronize files on multiple computers. Creates a folder that is automatically synchronized with as many computers as you like. Simply add or update a file and the contents are update on all the other computers. Allows you to revert to earlier file versions. Sub folders can be shared with teams.

5.2 Gantt Charts

5.2.1 Clocking IT

(<http://www.clockingit.com/>) An online Gantt system with included communication tools. Note that this program outside the NAU domain and be cautious with your identity.

5.2.2 ViewPath

(<http://viewpath.com>) An online Gantt system with included communication tools. Note that this program outside the NAU domain and be cautious with your identity.

5.2.3 Gantter

(<http://gantter.com/>) An online Gantt system.

5.2.4 Gantt Chart

(<http://www.youtube.com/watch?v=dp6J6Bw92d4>)How to put a Gantt chart into a Google Doc. Note that this does not work with Google Chrome.

5.3 Meeting Scheduler

5.3.1 Doodle

(<http://www.doodle.com/>) Find times where everyone can meet.

5.3.2 NeedtoMeet

(<http://needtomeet.com/>) Simple way to finds that folks can meet.

5.3.3 ScheduleOnce

(<http://www.scheduleonce.com/>) Find times where everyone can meet. Works with Google calendar.

5.4 Development Tools

5.4.1 Audacity

(<http://audacity.sourceforge.net/>) Record, edit, mix, cut, etc Audio.

AuthorStream

(<http://authorstream.com>) Convert PowerPoint to video automatically.

5.4.2 Bitstrips

(<http://www.bitstripsforschools.com/>) Create online comics - 30 day free trial.

5.4.3 CamStudio

(<http://camstudio.org/>) CamStudio is a free video screen and audio capturing program. You might consider recording a PowerPoint on your computer as you talk your way through a presentation then polishing with Movie Maker.

5.4.4 DrupalGardens

(<http://www.drupalgardens.com/>) Create presentations online - also hosts.

5.4.5 Free Screen Cast

(<http://freescreencast.com/>) This screen capture program does not require that a program be installed on your computer. See Camtasia for reasons that you might want to do this.

Jing Screen Capture
(<http://www.techsmith.com/jing/>) Another screen capture program that does not require program installation. See Camtasia for reasons you might want to do this.

5.4.6 Know Case

(<http://knowcase.com/>) Brainstorming tool

5.4.7 Mind42

(<http://www.mind42.com/>) Collaborative Mind Mapping

5.4.8 Movie Maker

(<http://www.microsoft.com/windowsxp/using/moviemaker/default.mspx>) I suggest Movie Maker for creating and editing videos. There are many tutorials available on the web but this is a good start. You might consider having team members recording part of a presentation then using Movie Maker to combine and polish the final product. Do use transitions and titles, be careful with special effects.

Movie Maker download for Version 7

(<http://explore.live.com/windows-live-essentials?os=win7>)

This link shows how to get Movie Maker for Windows 7. Earlier versions of Windows have Movie Maker already installed.

PowerPoint simple slide to movie

(<http://www.youtube.com/watch?v=PK4XdJ-ywSs>) How to convert a PowerPoint presentation suitable for upload to YouTube. Note: Powerpoint 2010 offers a variety of tools to convert content for the web. Another option for conversion is to do a screen capture.

5.4.9 Prezi

(<http://prezi.com>) Create and share presentations online - also hosts. Note: You could use one of the screen capture tools to make your Prezi presentation into a movie.

5.5 Webs.com

(<http://webs.com>) Create and share presentations online - also hosts.

5.5.1 Weebly

(<http://weebly.com>) Create and share presentations online - also hosts.

5.5.2 Wix

(<http://wix.com>) Create presentations online - also hosts.

5.6 Places to host your presentation

5.6.1 You Tube

(<http://YouTube.com>) You tube makes it very easy to share a video.

Request NAU Server Space

(<https://www4.nau.edu/its/webacct/index.aspx>) NAU provides substantial space on their servers and they will increase your

storage for class projects. You may upload your web resources here including pages and video.

5.6.2 Google Sites

(<http://sites.google.com>) Google provides free web space for projects.

5.6.3 SoundCloud.com

(<http://soundcloud.com>) Website to host sound

5.6.4 Vocaroo.com

(<http://Vocaroo.com>) Website to host sound

5.6.5 Wix

(<http://wix.com>) Create presentations online - also hosts.

5.6.6 Webs.com

(<http://webs.com>) Create presentations online - also hosts.

5.6.7 Collaboration Tools

5.6.8 Asana

(<http://asana.com>) Cloud based shared task list

5.6.9 AskClass

(<http://askclass.net>) Internet voting tool

5.6.10 Doodle

(<http://doodle.com>) Group scheduling tool.

5.6.11 Elluminate

(<http://illuminate.nau.edu>) Collaborate is NAU's adopted conferencing system of choice. To use Elluminate in our class, follow the link and search for "Balch" then have your team login at the same time to your prepared team area. The passwords are BBA360. Be sure to try the various tools including WebCams, application sharing, webpage sharing, and the whiteboard. Try a review of your recording. Here is a link to Elluminate Help.

5.6.12 Free conference calls

(<http://freeconferancecall.com>) Free Conference Calls

5.6.13 Google Docs

(<http://mail.nau.edu>) NAU Google Docs

Google+

(<https://plus.google.com/up/start/?et=ad&type=st>) Sort of a combination of Skype and Facebook. Allows for multiple video feeds. "Start a Hangout" for a "Circle."

5.6.14 GotoMeeting

(<http://gotomeeting.com>) Another conferencing system.

5.6.15 Join.Me

(<http://join.me>) Share your screen with multiple viewers.

5.6.16 Second Life

(<http://secondlife.com>) A virtual reality.

5.6.17 Skype

(<http://skype.com>) Skype is a free application that allows you to have audio conferences, face-to-face video, and screen sharing. You can find me on Skype with my "NAUCharlie" handle. Yes

5.6.18 Zoho

(<http://zoho.com>) Document collaboration Yes