

I PRO 339
**Developing Team Building Games and On-Line Training
Tools that Enhance the I PRO Experience**

FINAL REPORT
Summer 2006

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Introduction

I PRO 339 “Developing Team Building Games and On-Line Training Tools that Enhance the I PRO Experience” has been instrumental in changes made to improve the I PRO Program. I PRO Program has existed for 10 years and has developed significantly over time. Nevertheless, teams still have room for improvement. Two of the problems that we've acknowledged are that students do not know each other coming into the I PRO team and they are not given proper instruction on how to manage and plan their projects. Therefore, it usually takes teams at least a month to start producing quality results and work efficiently together.

Background

I PRO teams have historically seen a lot of difficulty in the process of team formation. This could be due to deficiencies in effective teambuilding processes and a general lack of understanding of project management principles. One of the problems that often occur with I PRO teams is that they do not start up quickly and therefore, do not have enough time to produce quality deliverables. The efforts of the I PRO 339 team this summer will focus on developing materials and processes to help future I PRO teams to accelerate their team building process and bring about team cohesion in a much more timely manner.

There has been much research done in the past on both project management and teamwork. The project management research was mostly used to develop learning objective materials, quizzes, and tests. The teamwork research was also used to develop learning objective materials, quizzes, and tests. However, there is also much research on teamwork within the I PRO program itself. Each sub team will use past research to help them design the materials or programs they would like to implement in the Fall.

Objectives

I PRO 339 members have a set of goals in terms of improving teambuilding processes and developing project management tools, documentation and best practices.

In the sphere of improving **teamwork in the I PRO program**, I PRO 339 aims at developing a complete teambuilding process for the I PRO program to implement in the Fall 2006 semester. The teamwork sub team plans to approach teambuilding from three different points: trust development, I PRO games, and other teambuilding activities.

These three areas will eventually come together to produce a final recommendation for the IPRO program.

The project management section of IPRO 339 has the following objectives for this summer semester: deliver three project management tools and training materials in the three major areas of project management; planning, organization, and controlling

Methodology

In order to achieve the above-mentioned goals, IPRO 339 is divided into the following subteams:

- **Teamwork:** Rachel Wasserman, Kelly Bergren, Joseph Chojnowski, Ksenia Koltun
- **Project Management:** Mohammad Mahmoud, Anita Phetkhamphou, Noi Phonexayphova, Axita Patel

Project Management:

Anita Phetkhamphou:

In order to determine how to best implement Microsoft Project 2003 into IPROs, a number of steps were taken that lead up to our final decision. The following methodology was used to develop the best way to teach and use the software for future IPRO students.

1. Research the principles and best practices of project management.
2. Research strategies on developing project plans.
3. Research/Analyze the current conditions of project management among IPRO teams.
 - The research is done by grading the Spring Semester project plans in the areas of planning, organizing and controlling. We specifically focused on the area of planning/ organizing and graded the plans on the criteria of: Task Definition, Start & End Dates, Duration, Resource Allocation, and Job Hierarchy.
4. Analyze results of grading criteria in order to see what teams needed assistance with to create project plans. Develop tool selection criteria.
5. Research tools available and compare with Microsoft Project.
6. Research Microsoft Project software.
 - Research the most commonly used features.
 - Learn to use the program with the help of internet walk-thru, exercises and guides.
7. Determine the best features to use in Microsoft Project.
8. Develop exercises, step by step guidebook & tutorial
9. Develop online tutorial with Wink program that walks students through learning MS Project.

Noi Phonexayaphova

1. Research the Definition of Project Management
 - a. each member researches and understands the phases and activities of Project Management in the context of constraints.

2. Analyze example previous project plans to understand points of Project Management strengths
3. Use points of strength in the three areas of interest (planning, organizing, controlling) in the example project plans to define selection criteria.
4. Research PM tools
 - a. Find as many instances of possible tools that could be used
5. Identify Best PM tools
 - a. For each major process (planning, organizing, controlling) the researched PM tools are passed through the filter of the selection criteria to identify the most suitable tools available.
6. Q&A with consultant
 - a. Bring in consultant to clarify ambiguous terms, features and differences in tools found.
7. Brainstorm best practices
 - a. (Most Likely with Consultant) Figure out what would be best practices for integrating / using together the various tools together in such a way to form a single coherent system of management.
8. Develop/Modify tools for IIT use
 - a. If possible, alter the tools (e.g. removing excess functions) in order to streamline learning, intuitiveness and decrease the intimidation factor. In other words, reduce the thresh hold for learning and using the tools effectively.
9. IPRO Day Preparation
 - a. Planning for IPRO day and completing all required IPRO office deliverables.

Axita Patel:

In order to improve on organization in the IPROs it was prudent that we analyze the previous semester's project plans and midterm reports for organizational methods. Several criteria were used to determine the quality of organization in these reports. These criteria were: A list of all team members, the educational background of each team member, other skills, strengths, or interests of each of the team members, all of which accounted for team structure. A division of the team into subteams with sub team leaders, a breakdown of what each sub team is responsible for, and a list of the team members assigned to each subteam, all of which accounted for task allocation. Whether various roles were allocated to individual members of the team or sub team, and whether all relevant roles were filled (i.e. meeting minute taker, time keeper, agenda maker, etc...), all of which accounted for role allocation. All of the spring 2006 IPRO project plans and midterm reports along with the existing Project Plan and Midterm Report Examples were then evaluated according to the previously mentioned criteria and subjected to a grading schema.

Mohammad Mahmoud

In order to successfully complete the goal of improving the state of Project Management in the IPRO program, the following sequence of activities were undertaken:-

1. Research the definition of Project Management and familiarize one with the activities that constitute Project Management.
2. Develop a simplified model of Project Management that can be communicated and explained easily.
3. Identify the characteristic dimensions or features that would represent the performance of the simplified Project Management model.
4. Establish a project management grading scale that is based on the previously mentioned characteristics.
5. Use the grading scale to measure the extent to which project management was performed in the spring semester.
6. Analyze the resulting grades to identify significant trends or patterns.
7. Make note of most common deficiencies in the spring semester execution of project management.
8. Use previously noted deficiencies to establish project management tool selection criteria i.e. any project management tool under consideration should fundamentally be able to address or facilitate the implementation of those tasks/activities that were lacking in the spring semester IPROs.
9. Find as many instances of project management tools as possible.
10. Filter the pool of project management tools using the previously mentioned tool selection criteria.
11. Make final selection of project management tool.
12. Design an Implementation strategy with accompanying materials
 - a. Write out a workshop outline and script.
 - b. Design workshop exercises and tutorials.
 - c. Create a self learn on line tutorial for mass access and later reference.
 - d. Update Project Plan and Midterm guidelines to highlight project management best practices.

Write the specification for a Project Management Award in the IPRO Program.

Teamwork:

Joe Chojnowski

How I went about doing my research was first to understand what I was looking for, in this class this was a huge problem. It is a huge problem because it took me a lot of work and time for me to finally realize my problem. After researching many books, websites, and past articles on group games, I was helped out by my group leader to focus more on the facilitation of the games then the games themselves. At this point of my research the most helpful sources I had was the articles from the past IPRO's, observation of past IPRO games, and the article of how to lead a discussion. Also the help of 4 professors and one graduate student gave me great advice to steer me in the right direction.

Kelly Bergren

In order to learn more about trust and how it affects team performance, I researched several psychology articles geared toward that topic. Many touched on the subject, but only one went as in depth into that specific area as was necessary to attain meaningful results. This article was the basis for most of my research.

Ksenia Koltun

During my IPRO experience I researched teambuilding games in order to provide suggestions to future IPRO teams. I also analyzed Spring 2006 minutes by sorting through them in groups and grading each minutes entry based on specific criteria, which I have developed. Based on my findings I developed a minutes template for future use in IPRO's. In addition, I improved existing minutes examples and guidelines.

Rachel Wasserman

I, being the leader of the teamwork subteam, assisted my teammates in fulfilling their tasks. I also organized meetings with outside sources in order to get feedback on our team progress and ideas. In addition, I provided resources such as, teambuilding books and my expertise. Compiling the final presentation, project plan and final report were also some of my duties.

Assignments

In order to achieve the above-mentioned goals, IPRO 339 is divided into the following subteams:

- **Teamwork: Rachel Wasserman, Kelly Bergren,** Joseph Chojnowski, Ksenia Koltun
- **Project Management:** Mohammad Mahmoud, Anita Phetkhamphou, Noi Phonexayphova, Axita Patel

Teamwork:

Rachel Wasserman: subteam leader

Kelly Bergren: trustbuilding/teambuilding activities, minutes taker, trust scale survey

Joe Chojnowski: IPRO Games improvement, facilitator training workshop

Ksenia Koltun: minutes analysis, minutes template, improve minutes examples and guidelines, helped Kelly with teambuilding activities planning and suggestions

Project Management:

Mohammad Mahmoud: subteam leader, helped with MS Project tutorial (Wink)

Anita Phetkhamphou: analyzed project management tools and project plans, learned MS Project, developed Project Management workshop and tutorial, abstract

Axita Patel: Analyzed midterm reports, improved midterm report guidelines and examples, developed/proposed project management award

Noi Phonexayphova: analyzed project plans, provided posters for exhibit, developed project management workshop

Obstacles

Teamwork:

Joe Chojnowski:

The biggest obstacles for me were time, knowledge of the subject, and understanding what I was producing. Time was a problem because this class has a lot of responsibilities in a small amount of time. I am not only homework but amount of information that you learn is a lot and it is hard to absorb it all in such a short time. I have never been good at project management or teamwork and it is hard to comprehend so much information about them. Psychology is one of my worst subjects it is as far away from what I am good at. Even though I am in Architecture I should have been in Engineering because I like the yes and no answers and this class definitely does not have yes and no answers. Until the last weeks of class I did not know what I was producing. This made it hard to focus my time and effort on my solution.

Kelly Bergren:

The main obstacle I encountered throughout my research was time. Given a shortened semester, it was difficult to go through all of the information necessary to get something out of it all. This, in itself, was another obstacle – finding the right material. It was easy to find articles that casually discussed the topic at hand; however it took some work to finally find one that provided much help.

Ksenia Koltun

The greatest obstacle to overcome was time. Given the shortened semester there was a lot of things to cram into a short period of time. I had difficulty getting feedback from other experienced IPRO students since there were only a few IPRO's offered during this Summer semester. In addition, when researching teambuilding activities it was difficult to find ones that would be easily implemented in the IPRO program ("touchy-feely" was not an option) and there were many cultural barriers to many of the games suggested.

Rachel Wasserman

The pace of the semester was very rapid. I came across difficulties with managing my time and meeting with everyone I needed to meet with. It was also difficult to schedule team and outside source meetings due to everyone's summer schedules (i.e. vacations...everyone is taking one).

Project Management:

Axita Patel:

It was brought to our attention that making comments on the project plans and midterm reports and then posting them would be in bad form. We came to the decision that we could still use these as examples if we gained the permission of the faculty advisor associated with the project plans and midterm reports we selected. We are still in the process of gaining their consent.

Anita Phetkhamphou:

The obstacles we faced with recommending and developing Microsoft Project tutorials ranged from licensing issues to small technical features in the program.

1. One of the first and major obstacles we faced with MS Project was attaining a copy of the program for our research purposes. In order to get a copy of the program, it requires going through the OTS office and purchasing a license for the program. This issue on licensing still needs to be further clarified if the tool is actually introduced to future IPRO teams because it turns into a question of whether or not additional licensing needs to be purchased for every distribution of the software to teams.
2. Just learning Microsoft Project on your own without guidance is an obstacle itself since the program is so complex.
3. Coming up with a simple, clear tutorial for the program when the program is so complex and filled with business jargon.
4. Time constraint with summer running at an accelerated pace.

Noi Phonexayphova:

1. Time constraints: summer was too short & I was assigned the task of creating a workshop in less than a week.
2. Lack of knowledge on creating a workshop (I did not know how to begin a workshop)
3. Approval: needed to get the recommendation approved by the IPRO office and faculty.
4. There was an occasional lack of communication between sub teams. For example, getting the poster done took awhile because I was not sure what the other sub team wanted until the day before it should be printed.
5. Remembering to do everything: there were a lot of tasks I volunteered for, and I sometimes forget to remember to do half of them.

Mohammad Mahmoud:

The following is a selection of some of the obstacles we faced over the course of the summer:-

1. The accelerated pace of the summer caused in turn an accelerated work schedule.
2. The accelerated work schedule dictated meeting outside the class room, and working around our schedules was sometimes a challenge.
3. Near the end of the summer term, when all our deliverables were being put together, there was the challenge of keeping track of the status of the work of all the members on the team.
4. Going through the purchase process via OTS (Office of Technology Services) to obtain copies of Microsoft Project was protracted.
5. Translating the important project management concepts that IPROs were missing most often into a clear step-by-step tutorial was a challenge of the highest order.

Results

Teamwork:

Kelly Bergren:

Trust directly affects team performance and productivity. The most effective way to build trust is through team and trust building games. In order to see if these games work, a standardized measure of trust should be implemented. Drs. Reina and Reina developed the Team Trust Scale specifically for that purpose.

Joe Chojnowski:

The results that I produced are for facilitators to have training for the IPRO games. This will help the students attending the IPRO games to maximize their learning during the games.

Ksenia Koltun:

My final results consisted of improving existing minutes examples and guidelines. I have also developed a new minutes template for future IPRO teams to use in the future. I provided Kelly with some ideas on teambuilding games and researched previous minutes submitted by the Spring 2006 teams.

Rachel Wasserman:

I aided my team in their work progress and achievement of results. As subteam leader I provided insight, expertise and feedback to team members.

Project Management:

Anita Phetkhamphou:

- Developed analysis and grading criteria of Spring Semester project plans.
- Developed written comparison of Microsoft Project against Excel as project planning tool.
- Developed packet guide on how to use Microsoft Project.
- Developed script for Microsoft Project tutorial that would be used for online Wink tutorial.
- Developed small exercises that incorporated the principles of project management with the use of Microsoft Project.

Axita Patel:

It was determined that only 5 of the 36 teams evaluated, scored an average, C, grade on the organizational grading scale and of these five only 3 of them were in the top 15 teams on IPRO Day. It was also determined that only 25 of the 36 teams evaluated developed task assignments for their sub teams and only 10 of the 36 teams evaluated had individual task assignments.

Given the results of the evaluation of project plans for planning, organizing, and controlling it was established that the existing Project Plan Guidelines and Midterm Report Guidelines were not sufficient materials for the IPRO teams to develop good project plans and midterm reports on their own. It was decided that the Project plan Guidelines and the Midterm Report Guidelines would be modified to include a more detailed explanation of what was required to demonstrate team structure, task allocation, and role allocation. We also determined that the existing Project Plan Examples and Midterm Report Examples posted were a poor representation of what the project plans and midterm reports should be. Therefore, the best project plans and midterm reports determined from the evaluations were set aside. After making notes on these project plans and midterm reports about possible points of improvement we planned on posting these project plans and midterm reports as the new Examples.

Noi Phonexayphova:

1. Gathered data from the spring 2006 project plans to analyze the quality of project management (used as a deliverable).
2. Developed a Project Management Workshop that will be implemented in the fall 2006 semester.
2. Developed a project plan grading criteria that will be used in the fall 2006 Project Management Award.

Mohammad Mahmoud:

We have achieved the following in the course of completing our IPRO:-

1. Created a grading criterion to gauge the level of project management performance in an IPRO.
2. Conducted a statistical analysis that strongly suggests that project management does have a positive effect on the performance of a team as measured by their IPRO day results.
 - a. The analysis also suggests that the whole process of planning, organizing and controlling needed to be performed in order to see beneficial impact on IPRO day results.
3. Generated a support and documentation framework to backup our recommendations.
 - a. Wrote Workshop outline and program script.
 - b. Created Workshop exercises and tutorials.
 - c. Written Microsoft Project Tutorial.
 - d. Created an On-line Microsoft Project Tutorial.
 - e. Updated Project Plan and Midterm Report Guidelines.
 - f. Wrote the specifications for a Project Management Award.

Conclusions and Recommendations

Teamwork:

Kelly Bergren:

- Have IPRO teams participate in at least 3 of the suggested team building activities
- Have all IPRO teams take the Team Trust Scale twice in the semester (once at the beginning and again 8 weeks in)

Joe Chojnowski:

I recommend that this outlined script be used and during the training it be observed to see if any corrections need to be made.

Ksenia Koltun:

I recommend that the minutes be made an IPRO requirement, not just a suggested deliverable. I also recommend the usage of the new minutes template, examples and guidelines. This will help the team be more focused, organized and effective.

Rachel Wasserman:

I recommend the usage and implementation of our team's suggestions. I believe that they will greatly improve the IPRO program and help students learn teamwork, project management and the other learning objectives. I also recommend that every IPRO team should have ice cream and pizza at all their meetings! ☺

Project Management:

Axita Patel:

One of the ways we hope to improve project management in the IPROs is to recommend a Project Management Award. The award would be given to the IPRO team which demonstrates the best project management practices across the entire semester. The prize itself would be a \$500 cash award presented to the winning team on IPRO day.

The purpose of the Project Management Award is to provide an incentive for students to practice better project management skills. The top five teams that are determined to demonstrate the best project management will be recognized and the top team will be presented with the cash award. Currently, very few teams demonstrate adequate project management. The most recent project plans and midterm reports submitted by IPROs were graded for planning, organizing and controlling criteria. Only 6 of the 36 project plans graded for planning criteria scored an above average grade, a B grade. There were no teams that scored an A grade. The award will provide motivation for students to create better project plans and midterm reports. MS project software will even be provided to the IPRO students to help make these requirements easier to fulfill. In the end, with the improvement of project management practices we hope IPRO students will be producing better projects.

To be eligible for the Project Management Award the following requirements would need to be fulfilled:

- The submission of a Project Plan by the designated due date.
- The submission of a Midterm Report by the designated due date.
- The submission of complete Meeting Minutes including Meeting Agendas for all team meetings spanning the entire semester.
- And, compliance with all IPRO Day deliverables including the required CD-Rom.

We suggest that an IPRO staff member be designated or perhaps hired to evaluate the project plans shortly after they have been submitted. The project plans tend to be fairly extensive and it may take up to 10 hours to grade all of them. This would be assuming that all the project plans were submitted on time. Project plans not submitted by the designated due date will be eligible for the award at a 10% deduction of the project plan grade for every week it is late. The grading criteria for the project plans have already been determined and will be provided for the evaluator. These criteria are based on the planning, organizing and controlling aspects of project management. The project plan guidelines provide detailed requirements for a complete plan. Project plans that contain all of the information outlined in the guidelines should have no problem fulfilling the grading criteria for a high grade.

This same IPRO staff member or designated evaluator would have to grade the midterm reports shortly after they have been submitted. The midterm reports vary from being very extensive and technical, to being condensed and intuitive. It may take up to 8 hours to evaluate all of the midterm reports turned in on time. If an IPRO group fails to submit the midterm report by the designated due date, they will be eligible for the award at a 10% deduction of the midterm report grade for every week it is late. The grading criteria for the midterm reports have already been determined and provided to the evaluator. Again these grading criteria are based on the planning, organizing and controlling aspects of project management. The midterm report guidelines provide detailed requirements for an inclusive report. Midterm reports that contain all of the information outlined in the guidelines should have no problem fulfilling the grading criteria.

Meeting minutes will also need to be assessed by the designated IPRO staff member or evaluator. We suggest this be done at the end of the 14th week of the semester. This will not be difficult but it will be the most time consuming part of the grading process. Each team's meeting minutes will have to be evaluated with the given grading criteria and it will take up to 15 hours to evaluate all of them. Teams that do not have at least 13 weeks worth of minutes posted on their iGroups page will be eligible for the award at a 10% deduction of the total meeting minute grade for every week's worth of minutes missing. Meeting minute templates and guidelines posted on iGroups provide detailed requirements for comprehensive minutes. Meeting minutes that contain all of the information outlined in the template should have no problem fulfilling the grading criteria.

Lastly, all IPRO Day requirements will need to be fulfilled for a team to be eligible for the award. On IPRO Day, the designated IPRO staff member or evaluator will enter the IPRO Day results for completed deliverables from the IPRO Day Judging Sheets into a given grading matrix. The team with the highest score, as determined by the grading matrix will be given the award and the top five teams will be recognized as demonstrating great project management practices.

The project plans and midterm reports will be evaluated according to the criteria outlined in the Project Plan Guidelines and Midterm Report Guidelines. Meeting minutes will be evaluated according to the criteria outlined in the Meeting Minutes Template and Guidelines. All guidelines and templates, previously mentioned, will be posted on iGroups for the use of all IPRO teams. Examples of project plans, midterm reports and meeting minutes are also provided and posted on iGroups for all IPRO teams to view.

Project management in IPROs is a significant part of the IPRO learning experience. Most IIT graduates will be facing similar, if not more intense, job environments. In such surroundings, good project management skills are essential. With this award we hope to inspire students to excel in project management practices.

Anita Phetkhamphou:

Microsoft Project 2003 should be made available to all future IPRO teams to help assist with the planning and organizing that takes place at the beginning of developing projects. Although it is not necessary for teams to use the software in order to develop a good project plan, it does force students to think and use project planning concepts because in order to use the software you need to carefully think ahead and gather the data that will be input. By providing the software and the tutorials developed over the course of the semester, it is anticipated that students will learn the program in a few hours rather than the twenty plus hours it took for our designated student to learn.

Noi Phonexayphova:

Offer a Project Management Workshop on the 3rd week of classes in the fall 2006 IPRO semester.

References

Cathy Goodman

Spring 2006 IPRO project plans

IPRO Office webpage

Online Information, Demo's, & Templates for MS Project:

<http://office.microsoft.com/en-us/assistance/CH790018101033.aspx>

Guide to creating project plans in MS Project

<http://office.microsoft.com/en-us/assistance/HA011361531033.aspx>

MS Project Tutorials

http://www.educationonlineforcomputers.com/blogs/post/Free_Microsoft_Office_Training_Tutorial_Resources/434/Tutorials-for-Word-Excel-Project-Access-and-Outlook

MS Project Example Exercises document

www.cba.edu.kw/abo/pdf/MS_ProjectExercise1.doc

"Trust and Team Building" by Jesse G. Mendoza

Trust and Betrayal in the Workplace

by Dennis Reina Ph.D. & Michelle Reina Ph.D.

Michael Terrien's IPRO 339 Status Report

IPRO 339 debriefing handbook

“How To Prepare and Lead a Discussion,” How To Be an Effective Trainer.

Summer 2006 IPRO Games Student Survey results.

Spring 2006 minutes from all teams

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