

Group Projects: Issues and Practices in Computer Graphics Technology

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1. Abstract

Group projects are an important aspect of the unique and evolving discipline of Computer Graphics technology. In the workforce students of computer graphics technology are required to communicate and work effectively with art directors, computer science, business personnel, peers and the public. Simulating the “real life” experience within the group project is an optimal goal for the educator. [Andres 2000] Many issues face the professor when incorporating a group project. The evaluation process can be ambiguous, coordination among students with busy schedules and the distribution of skills within a student group is often mismatched. Below two professors explore some pros and cons implementing group projects in a portfolio building course and an advanced web course.

2. Jana Whittington, Assistant Professor of Computer Graphics Technology

2.1 What type of courses and what is the premise of your group project?

A group project was applied in a sophomore portfolio building type course, and was implemented three weeks into the semester. While students were developing their group projects, other learning objects were being taught in tandem. This was to provide students with new technical and aesthetic skills as well as enhance creative solutions.

Within the group project students were required to develop a promotional plan for a particular business with specific needs. They were required to research promotional alternatives, define the target group, develop prototypes, research production costs and present ideas to the class and clients in a professional manner. They had to sell their creative idea to the class and clients. The class and clients were given evaluation criteria to provide feedback.

Once their ideas were approved they had to be implemented and executed. The first step was to create a timeline in which to measure progress both projected and actual. Communication between client and group was required along with a weekly individual time log. Each group had to define the individual member’s role and progress in the project.

2.2 What was your role as the teacher?

Within the group project my role changed from instruction to manager and moderator. [Newman et al. 2002] I would check the progress of each group on a weekly basis, provide possible alternatives to problems addressed by students and provide resource materials when applicable.

2.3 How did you create your student groups and what were your successes and negative aspects?

Since this particular class of students had been involved in group projects in other courses and had defined groups, I decided to challenge them by putting names in a hat to be

drawn randomly. I hoped to challenge skills and address “real life” group issues, thus enhancing communication between group members. Two groups were not cohesive, due to personality issues. Defined roles were not kept and each worked as an individual. One group was above average and extremely successful in creative ideas and implementation. Another group had great brainstorming skills, but implementation was not as successful. I found that it took more time to get to the implementation of the project, because individuals in this group were not forthcoming with defining skills among individual group members. In this particular group the members were all good designers with a specific style, but design was the weakest in the outcome. In one of the medium skilled groups, a student with good scripting skills was designing the graphics and the better design students were scripting. Each was helping the other, which was a good learning resource, but the final project lacked professionalism.

2.4 How did you evaluate your group and what specific problems did you encounter?

A grade was given for each phase of the overall group project, as well as the final group project grade. Each individual student was graded on how well they progressed in their defined group role, preliminary works accomplished in the role, as well as timesheets which reflected involvement in the overall group project. The result was that of two separately rated grades that were recorded for the project. The biggest problem was subjectively grading the dysfunctional groups. I had not developed enough quantitative criteria for the group problems that occurred. Creating random groups was a great learning experience for the students to define, communicate and implement a project with unfamiliar members, but production was below average.

2.5 Have you tried a cross-discipline group project?

I have had discussions with other disciplines within the school of technology to try and implement a group project. At this point it has not progressed any further than learning outcomes for the project in each discipline. Also scheduling would need to be done a year ahead to align the courses to accommodate lab times for this type of collaboration.

Collaboration between disciplines appears that it might be a challenging and rewarding venture, but students need to have experienced the organizational implications of group projects before a cross discipline project can be a successful.

3. K. James Nankivell, Guest Professor of Computer Graphics Technology

3.1 What type of courses and what is the premise of your group project?

The concept of a group project was employed in the advanced Web development course. A main course objective was to actively seek out individuals or institutions looking to

implement a Web site, but financially unable to do so. Four to five Web site projects are used in the course, allowing for groups of three to four students. The early weeks of the semester are focused on Web development learning objectives allowing for the instructor to develop a level of the aptitude of each student. In the fourth week group members are assigned along with the Web site project.

Once the groups have been established, each group must provide specific documentation on the process of developing their Web site. This includes a project timeline, main contact with client, group member roles and initial design concepts. Documentation was reviewed and approved by the instructor. As projects proceed, a weekly online discussion posting was required detailing by each group member, the progress of the project and what was done individually. The discussion boards are visible to all students to read and reply to.

The projects are monitored through the course of the semester along with individual contributions to the projects through online discussion posts and instructor/group meetings. Around week 12 of the semester, each group was required to present a preliminary review to the class of progress, including proposed Web page layout, customer participation and project successes and setbacks.

3.2 What was your role as the teacher?

The course requires a substantial amount of early semester lecturing followed by a great deal of mentoring. The main role dealt with contacting the clients in hopes of obtaining content for projects. This role included emphasizing the importance of the projects to the clients, for the students and the need for higher levels of participation. The clients and students had to be constantly reminded that there was a final deadline for each project, with particular emphasis to the clients. There was also a great deal of technical, managerial and design assistance.

3.3 How did you create your student groups and what were your successes and negative aspects?

The project groups were defined by the students. These students have worked together in groups in the past and had very comfortable working relationships with specific individuals within the class. [Blowers 2003] As the groups were defined, there were concerns with one group in particular. The group did not have a leadership quality type individual and this became more apparent as the semester developed. On the other extreme, another group had the perfect mix of leadership, design and organizational talent which provided for an outstanding final product. The other groups were well balanced with adequate results. As a general observation, the groups were more than a match for the projects that they were assigned to complete.

3.4 How did you evaluate your group and what specific problems did you encounter?

The groups were evaluated by the final project output and the individual efforts each member provided to the group. The individual efforts were determined by the weekly postings provided by each student, feedback provided by the group members and observations by the instructor. It became clear as the semester developed, which groups and group members were providing the effort necessary to achieve success in the

projects. It also was apparent which group members were along for the ride. The individual grades were determined using three main criteria: Final project grade, Individual effort on the project and the individual performance on non group project learning objectives. As a result, two of the projects receiving A's had at least one group member receiving a B or lower in the course.

The main problem, with the exception of one group, was providing the groups with adequate content for their Web sites. The Web site projects were not very difficult to produce and did not provide an adequate challenge. In many cases, the advanced technologies being studied were not applicable to the Web sites. A detailed review of the type of group projects for the course is presently under review. It is extremely important to include a group project for this course and is just a question of how to implement it.

4. Conclusion

The key to any successful group project is the mix of students. Most pick friends within their discipline to work with and when new personalities and skills are mixed new problems arise. CG technology group projects are a necessary component, because rarely will an individual work completely in a secluded environment. The Major obstacles in group projects include group member participation, time conflicts and the proper blending of talent and personalities. [Lordan 1996] These major obstacles are also the same ones faced in the work place and must be overcome for a project to be completed successfully. At the end of each group project assignment, a detailed evaluation of the successes and failures of the projects should be undertaken. Feedback should be elicited from the participants to better understand and improve the process. This feedback should be introduced to the students with the understanding that no effect will result from their comments and suggestions on the final outcome of their grade. Many faculty members and students look disdainfully at group projects because of the perceived inequities in the process. The group project methodology must be refined and enhanced to provide the student with the skills necessary to perform in the field for which they are training. The main thing to remind students when participating in a group project is that the habits you develop now will carry over into later life endeavors.

5. References

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