

Mapping: Methods & Tips

The Cartographic Apprentice: By the End of This Assignment, Someone Will be Fired

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Keywords: collaborative learning, group work, education, teaching strategies

Abstract

The encouragement for group work and collaborative learning is supported in education. Simulations, role playing, and games are common techniques to engage students in actively participating in the learning process. Creating the rules and organizing the groups are some of the challenges facing instructors, especially in mapping courses where students vary greatly in both content knowledge and technical skill development. Surprisingly, successful tactics were adopted from the growing fascination of reality tv. The Cartographic Apprentice simulated Donald Trump's business tactics to engage students, create competition, and mediate group dynamics. The semester-long game had students working in groups to create posters that were evaluated by faculty and students. Winning teams were rewarded by maintaining their successful group, while losing teams had to meet in the cartographic board room and critically evaluate their projects, which eventually led to someone being fired.

Introduction

As an instructor, developing course exercises and activities can be a monumental task. Trying to reflect on exercises I used during my formal training does not work, as much of my schooling took place in the "pen and ink" and "early computer program" eras. Today, information, technology and employer expectations have drastically changed. Students need to have conceptual understanding of content material, the ability to utilize computer software, and ideally acquire strong communication and personal skills. A combination of small individual projects along with group work can assist in achieving desirable student outcomes. However, like many in the teaching profession I have struggled with group dynamics. As someone who watches very little television, and primarily

sporting events at that, I was quite surprised to find creative teaching strategies develop from the current popular trends of questionable network programming.

Group Projects and Gaming in the Classroom to Enhance Student Learning

A growing literature exists encouraging group work and collaborative learning in education. Davis (1993) reports that regardless of subject matter, students who worked in small groups tended to learn more and retain information longer than those who learned individually, which in turn resulted in students reporting to be more satisfied with their courses (Collier, 1980). Livingston and Lynch (2002) who tested two approaches to group work in a GIS curriculum discuss how a country's workforce can be enhanced by group projects to develop cognitive and interpersonal skills that extend well beyond the student's disciplinary content or material.

Simulations and games are a common teaching technique used to encourage group projects and collaborative learning in education. Simulations or case studies actively engage students in "real-world" roll playing scenarios, such as the study by Churchill and Liebowitz (1990) who used the hypothetical situation of locating a noxious facility to explore spatial conflict at local and regional scales. Warbuton and Madge (1994) found gaming as a motivating factor for students regardless of content material, and gaming in geography has been found to encourage small group interaction that ensure all members of the class participate (Greenblat, 2001). Edgington and Hyman (2005) consider the use of games, such as lessons learned from baseball, ideally suited to making the foundations of geography relevant to students and help them engage in their learning.

The literature addresses many of the limitations or problems associated with group work. The design, implementation, and assessment of groups can be a challenge. Healey and Matthews (1996) discuss the unequal contributions from team members, unfair distribution of grades, the ability for non-productive students to slide through, the inability for all group members to meet, and personality clashes. Thus, the development or design of group work is an important key to success. Davis (1993) outlines important guidelines that include (1) creating groups that require some independent activities and hence allowing for a fair division of labor, (2) making the objectives relevant,

(3) increasing difficulty of assignments as students skills and abilities increase, and (4) setting up competition between the groups. Surprisingly, I found these strategies being successfully employed as I was channel surfing.

Reality Television

It is hard to ignore the popularity and fascination television networks and the public have placed on reality tv over the past several years. The content and the “reality” of these programs is disputable, but the pervasiveness of them is undeniable. In hindsight, many people may classify early programs such as the 1948 *Candid Camera* and the 1950’s *Truth or Consequences* series as the beginnings of Reality TV. These programs caught people in unexpected circumstances, where as in 1992, MTV’s *The Real World* began staging environments in which groups of people interacted. It was in 2000 that CBS’s *Survivor* combined this “reality” with the “game show” strategy where team members competed for one million dollars. Today, the major networks and cable stations run a series of reality tv programs, and winners (and some losers) of these shows are becoming household names (Turner, 2006).

The underlying premise for many of these reality shows is questionable, the underlying morals may be low, and the participants may be exploited. Reiss and Wiltz (2004) claim that reality tv programs appeal to basic human instincts, while O’Fallen (2004) argues that important lessons can be learned. The premise behind *Candid Camera* showed the importance of resisting unjust or ridiculous authority, and current filming of a British reality show is recreating important psychological experiments (Shouse, 2001). The challenges of group dynamics are evident in the business tasks presented by Donald Trump in *The Apprentice*.

In January of 2004, Donald Trump, Mark Burnett, and NBC produced the television reality show, *The Apprentice*. It has since continued with additional seasons. The show involves a group of interns who are competing for a position in Donald Trump’s organization. Each week, he splits the candidates into two teams who are given a business task that requires intelligence, creativity, motivation, and often luck. The team’s progress is assessed by Donald Trump, two other senior employees, and then an additional outside observer, general public, or total sales. At the end of each task, one team wins and one team loses. The losing team meets Mr. Trump in the board room to discuss what went wrong and who was accountable for specific assignments. The show ends when one person hears those famous words, “You’re Fired!”

The Cartographic Apprentice

The Cartographic Apprentice was a teaching strategy that successfully achieved group work and collaboration throughout the semester of a 300-level cartography course. The course contained many traditional techniques such as lectures, short exercises, homework assignments, quizzes and exams. However, carried throughout the semester were six group assignments that required larger poster-size maps that could be hung in hallways. Students in the class were assigned to groups of 4-5 people. The class was given a specific topic along with an overall agenda. Each group had to decide on the specific area, gather data, design a poster, and submit a written report. The posters were displayed for faculty and students to give input. Geo-Environmental faculty were asked to give their expert advice, while students in a general education course gave a public opinion. Winning posters were announced and the losing teams had to meet me in the Cartography Board Room and yes-someone was fired!

The Theme Song

To start the premise of this semester off, I designed an interactive multimedia video that highlighted topics of the course. The video utilized the same theme song and the beginning format as *The Apprentice* television show. A rotating compass rose would stop every ninety degrees and highlight topics covered during the semester, such as the history of mapping, data collection, scales, projections, symbology, typology, and overall design layout. In between these topics, and similar to the show, I would fade images of Donald Trump and the New York skyline and superimpose my own face on our campus (I even drew Trump’s signature pink tie on one of my photos at the end). Several screen shots faded away by a helicopter going across the screen, and transitional slides were used with text such as “It is not personal, it’s just cartography.” This became the theme song of the class and it seemed to get students motivated, excited, and into the competitive nature of the assignment, while it displayed course objectives in a manner that showcased cartographic techniques.

Apprentice Rules

As in other gaming techniques, the game had a set of rules by which students followed. At the beginning of each assignment I reminded students about the rules.

- ✓ Tasks are given at the beginning of each assignment.

- ✓ Time limits will be exact and NOTHING will be accepted past the deadline.
- ✓ Printed maps should have the group's logo only. NO individual names should appear on the final poster.
- ✓ Posters will be hung for faculty and students to evaluate.
- ✓ You are NOT allowed to ask faculty for help-that includes ideas, data gathering, information, or design.
- ✓ A written summary, with inserted graphics must accompany each poster. I would expect it to be several (2-3) pages in length and include the main topic headings: Introduction to topic, method or sources of data, classification, selection, and interpretation method, overall design, and a conclusion.
- ✓ Since there will be more than two teams (as on *The Apprentice* show) the choice of which team competes against which team will be randomly selected and announced at the end of the evaluation period.
- ✓ Everyone in the group will receive the same grade for that given project.
- ✓ The losing group (groups) will meet me in the boardroom.
- ✓ Someone WILL BE FIRED!
- ✓ Fired person must still complete all remaining assignments; however, without a group there will be much more work to do on their own.
- ✓ Fired persons can make a new group (up to 5 people).

Apprentice Assignments

The challenge of assigning group projects was understanding the student's cartographic knowledge at that point of the semester. For example, the first activity of the semester had to consider the fact that the students had limited knowledge. As a class we had only covered an introduction and the history of cartography, along with its relationship to other mapping sciences. We had covered a short discussion on the basic constraints of the Earth's shape, coordinates, projections, and scale, and had only a basic introduction to map design and layout. The students had begun to use ArcGIS and CoreIDRAW and learned how to import and export between these programs and Microsoft Word.

The Assignment therefore could not require students to gather a great deal of data and make proper symbology choices. Thus the result was the following first assignment:

- Your job is to design a map of a fictional place.
- The place can be entirely from your imagination, from a book, movie, song, or other medium.
- As a group you should decide on that place and agree upon its characteristics.
- By next week your group should hand in the title of your place, a brief description, and a general idea of the overall design (this will then be further developed for your final written summary).
- Your map should be NO larger than 24 x 36 inches.
- You may want to include photos, diagrams, charts, or additional text describing your place. If suitable you may want to put a scale bar, graticule lines, north area, etc. But only if it makes sense!
- Make sure you properly reference and cite any source from which you get information.
- Your overall design should represent the "Feel" of the place. For example, a map of Middle Earth would probably be dark and spooky, while a map of Sesame Street would be more kid-colorful.
- The best map will be based upon ability for readers to get the right feel of the fictional place, understand the basic spatial features represented on the map, and overall creative aspects.
- You must hand-in a digital copy of the final map by the beginning of class, along with a written summary.

Each of the six assignments targeted specific tasks, computer skills, and cartographic content. A few class periods were devoted to the assignments, or a few minutes at the end of the period allowed for group members to meet, however, the assignments were given with multiple parts. Specific students within each group could chose roles. For example, one student may be in charge of the supporting text, one the data collection, one design the diagrams, and the overall layout. This allowed for them to work on their own time, but collectively contribute to the group. It was also designed to be a pivotal point when discussing cartographic flaws in the board room.

Evaluation and Assessment

The assessment of the assignments was similar to the show. As the instructor, I oversaw all activities and production, and of course, had the final say. Fourteen faculty members in the Department of Geography and Earth Science were asked to give their expert opinion, and eighty students in two sections of a general education course gave their public opinion. The benefits of

having this many people evaluate the maps motivated the cartography students, increased the fun, competitive nature of the game, show cased some very impressive posters, and introduced general education students to technique-based courses in the department.

The faculty evaluations listed a series of questions, the title of each poster entered, and a ranking from 1 to 5 that they could circle. Space was allotted for any additional comments, but the form was intended to be filled out quickly (I hardly wanted to increase the paperwork for my fellow colleagues). The following is an example of the questions from the first assignment:

Please Circle the value for each map, for each description: 1 is the lowest score, or poorest job, and 5 is the highest or best job of each category.

Ability to get a feel or sense of the fictitious place from the map

Sweet Valley Map	1	2	3	4	5
Plato's Lost City of Atlantis	1	2	3	4	5
Oz	1	2	3	4	5
The Restaurant at the End of the Universe	1	2	3	4	5

The remaining six questions were in a similar 1-5 format but targeted...

1. Ability to understand the fictitious place
2. Use of map components, such as border, neat line, scale, legend, author (group logo), date, and source.
3. Overall map clarity-easily distinguish between map features and overall design components
4. Visual Hierarchy (important items should be seen first, followed by less important items)
5. Appropriate use of space/visual balance
6. Overall Map

The evaluation instrument given to the undergraduate students in the general education course followed a similar format, however the questions included:

(1) Makes the topic interesting, (2) The mapped items are easily understood, (3) I get a good sense of the place, (4) It is easy to read, and (5) Overall map.

Holding Students Accountable: The Cartographic Board Room

At the end of the evaluation period groups were randomly selected out of a hat to compete with each other. After the posters had been on display for a week, the students generally knew which were the better posters before they received feedback from the faculty and general education students. By randomly selecting the competing teams, an element of chance was added to the game.

The losing teams had to meet with me and discuss why their poster did not win. The group was asked to evaluate their poster. This critique forced the students to really consider the components of their project in light of the cartographic concepts they had learned. Quite often the posters had a major flaw or two, such as not enough data to make the poster interesting, poor font sizes, styles, and placement, illogical symbol choice, or overall disorganized display. Specific students usually confessed that the crippling component was their responsibility, and yes, they were fired!

The cartographic board room was intended to have the students engage in self evaluation and critique their own maps. In addition, it effectively managed many of the problems associated with group work. In one instance one student freely admitted that he was busy, had not contributed to the group, and deserved to be fired. In another group, two of the students did all the work and asked to both be fired so they could do the next project on their own.

The board room did not solve all problems. In one group, serious personality clashes arose. Unfortunately a non traditional student who seriously struggled with the computer portion of the class was not appreciated by her fellow team mates for her conceptual knowledge. This specific student freely admitted that working with the software would bring her to tears, yet she was devoted to learning the material, study diligently, and was excellent at evaluating the group's work. In large part due to this student's input, the group would consistently create a high quality project and win, and thus the group remained in tact.

Conclusion

The Cartographic Apprentice was a semester-long teaching strategy that attempted to get students in a cartography class to actively participate in group activities. Taken from the reality tv series where interns competed to work for Donald Trump, the Cartographic Apprentice combined gaming and competition to encourage group participation and collaborative learning. Students learned to work together to produce a final output that was evaluated by the instructor, trained faculty, and undergraduate students. The display of the group projects provided an outlet for the cartography students to present their efforts and work, increased the stakes and professionalism expected from the projects, and it was a way of introducing mapping courses to general education students. The losing teams met in the boardroom to critique their loss and evaluate their errors. Those that did not contribute adequately to the group were fired and thus had an increased work load for the next assignment they had to complete without the help of a group.

Reports from the students were overwhelmingly

positive. Most students reported a satisfaction of group participation and learning. As in any class the range of student output varied greatly and it is hard to compare the maps produced in this strategy to those in previous semesters, however it did force students to evaluate and critically analyze their maps and the work of their peers. As the professor, I have to admit this strategy was a lot of fun. Usually as a professor, I try to be nice, encouraging, and sensitive. It was rather refreshing to take on Donald Trump's role, pull aside a student who you know had not been engaged in the course as much as they should have and say "You're Fired!"

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