Teaching Case

Building Teams With Legos

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Abstract

This case describes an activity focused on team building and decision-making conducted in an information systems capstone course. The purpose of this activity is to quickly mold groups into teams for rapid application development. Students compete for points by building Lego structures. The activity gives them the ability to work with their team to accomplish a goal involving a series of decisions, limited resources, collaboration and strategy. Process instructions, student handout and teaching notes are included.

Keywords: Team building, IS capstone, decision-making, collaboration, strategy

1. BACKGROUND INFORMATION

The Lego Build activity is a team building and decision-making exercise. Student teams decide, through a series of decisions, which structure to build out of Legos. They have a time limit and a random bucket of Legos. Teams compete against each other for points. There is a debrief at the end of the activity to reflect.

This activity is performed early in the capstone course for an undergraduate computer information systems program. This course is the last required course the students take within the program. It builds upon their previous required courses and some of the elective courses. In addition, it reinforces the added element of project management; a required course in the program. Students demonstrate their abilities developed from their courses through the team-based capstone project. Learning outcomes for this course include:

- Demonstrate an ability to function effectively on a team to meet a common goal;
- Evaluate potential conflicts and problems that can occur on projects; and
- Identify and implement appropriate actions to successfully managing a project.

The Lego Build activity is useful in helping to accomplishing the learning objectives because it allows students to work in teams to accomplish a common goal. Even though it is a relatively short activity, it can simulate many properties of a full project. They will need to anticipate skill level, resources, time limit, competition, and even motivation. Understanding how each team member interacts with one another in this short period can help the project managers and team leaders understand the skills and abilities of other team members and anticipate where conflicts may arise.

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2. TEAM SETUP

Students apply for either project manager, team leader, or systems analyst/programmer. During the first week of the semester, the professor of the course interviews each student. After the students are hired for their roles, they are put into teams. The teams are in a hierarchical structure. Each project manager has two team leaders reporting to him/her. In addition, each team leader has three to five systems analyst/programmers reporting to him/her. See Figure 1 for hierarchy structure.

After the first initial meeting when the teams are announced, the professor meets with the project managers. They are told that the next meeting will be a team-building day. In preparation for that day, they are to read over the rules of the Lego Build activity and determine if their two teams are going to build as two separate teams on one larger team. They are provided with the rules of activity and information on scoring to aid in their decisions (see Appendix A).

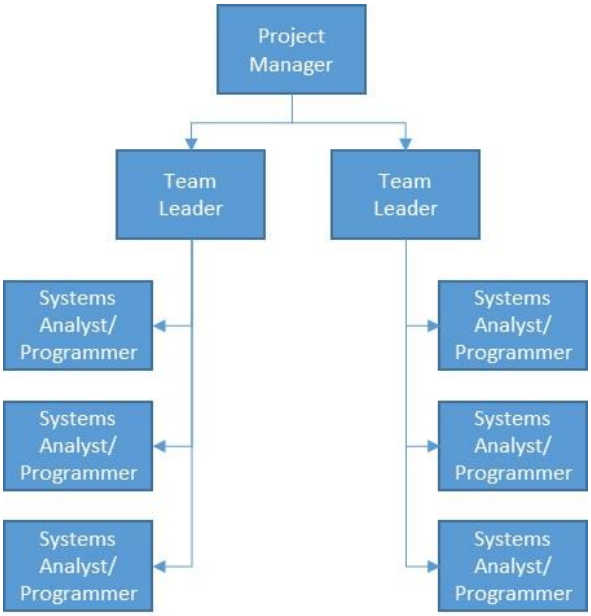

Figure 1: Hierarchical Structure

3. MATERIALS REQUIRED

1. Buckets of Legos (one per project manager) – 13 equal scoops (roughly 1 cup/scoop) of Legos per bucket. This is prepared prior to class so the buckets are ready. Having non-typical Lego bricks in the mix can make the activity more challenging. It also causes them to have to be a bit more creative in their thinking when building.

2. Cards with pictures of items for teams to build. Each card needs to have four options. In addition, there should be three levels of difficulty for the cards. For these cards, you can easily purchase the game Creationary and use those cards. Figure 2 shows samples from the game. However, you can also just make your own cards.

Figure 2: Sample Lego Creationary Cards

4. ACTIVITY PROCESS

At the beginning of class, the professor goes over the rules of the Lego Build activity. The teams are told their goal is to win by getting the most points. Next, the project managers give the professor their decision regarding building as one or two teams. The teams then take a minute to discuss which difficulty level they wish to build. They have the option of level one, two or three. However, if they are building as one large team, the lowest difficulty level they can choose is level two.

In addition, each team needs to identify the two "guessers" who will be the people who will guess what the structures are that the other teams have built. The guessers are allowed to build with their teams since they will not be guessing on their own team's structure. If a team is building as two separate teams, each of those teams will select

two guessers as they will be able to guess on each other's structures. Due to this, the teams are not be allowed to discuss what they are building with each other.

Once these decisions have been made, the project manager will come to receive the one bucket of Legos for the team. Even if the team decides to work as two separate teams, they only have one bucket of Legos allocated to that project manager. Therefore, they must split those resources.

The project manager at this time also picks up the card(s) at the difficulty level selected. The card is kept face down until the professor indicates it is time to look at the card. Once all teams have their cards, the professors starts the timer for 20 minutes and tells everyone to turn the cards over and begin.

At this time, each team must now decide which of the four options on the card to build. They are now able to see what they have in their Lego bucket. If they are building as two teams, they have to keep in mind that they do not know what the other team is building or which pieces they will pull from the bucket.

At the end of the 20 minutes, the guessers from each team go to each structure other than their own and try to guess what each structure is. The two guessers from each team are able to discuss with each other what they think a structure is. However, they do not necessarily have to submit the same answer. The scores are added up and the winning team announced.

The professor then leads the class in a reflective discussion regarding the activity. The students are asked first about the decisions that had to be made throughout the activity. Next a discussion of their process for accomplishing the goal. The professor then discusses any takeaways and lessons learned from the activity.

5. RESULTS

This is a high engagement activity. Students are highly participative in the decision-making, strategy, building and debrief. While students are indeed having a lot of fun during the activity, they are still able to notice all of the intended objectives. This is clear during the debrief session. Students are able to identify the strategy and resource allocation components. The students discussed the need for teamwork and communication when trying to find the pieces. In addition, they reported a stronger sense of comradery after the activity.

Editor Notes: Teaching Tips are available for this case, please contact the authors directly.

Appendix A

Handout Provided to Project Managers

Information for Lego Build

Decisions:

Decision 1: Build as one big team or as two smaller teams?

- If the team is split, the project manager can either be a participant for ONE team, or be an observer/facilitator/"hands off" participant for both
- If you split the team in two, the Lego bucket will be shared among the two teams

Decision 2: Which difficulty level? 1, 2, or 3

- If the team is working as one, the lowest you can go is difficulty level 2.

Decision 3: Which item do you build?

- Each card, regardless of difficulty, has 4 options.
- You will be able to see your Lego bucket at this time.

Scoring:

Category 1:

Guessing what the structure is

- Prior to beginning the builds, each team selects two people who will serve as "guessers".
- For every correct answer, the team will get one point. The "guessers" may discuss answers before each person makes their guess. Example: If they choose to guess the same thing – and it is correct – the team would receive 2 points.
- Teams are NOT allowed to guess on their own structure – however, if the team is split, they are allowed to guess on each other's structure without discussion with the other team.

Category 2:

Receiving correct guesses

- For each correct guess of the team structure, they will receive 1 to 3 points depending on the level of difficulty selected (i.e., if the team creates a level 2 structure, they will receive 2 points for every correct guess).

Examples:

Team 1 chooses to build as one team. The two guessers use the same answer and correctly identify one of the other structures. They receive 2 points in Category 1. They select a level 2 structure to build. 5 people in the class guess it correctly – they receive 10 points in Category 2. The total for Team 1 is 12 points.

Team 2 chooses to build as two teams. Both guessers of one team correctly guess one of the structures (2 points). Only one guesser of the other team correctly identifies one of the structures (1 point). Their total for Category 1 is 3. Each of them chooses a level 1 structure to build. 5 people in the class guess one correctly (5 points) and 4 people in the class guess the other teams' structure correctly (4 points). They receive a total of 9 points in Category 2. The total for Team 2 is 12 points.