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A Team-based Experiential Learning in Supply Chain Sourcing: Purchasing and Negotiation Exercises

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Introduction

This paper presents a web-hosted Google Sheet model of supply chain sourcing game focusing on negotiation activities which has been used in the classroom. The negotiation exercise was designed to place students in a position where they must make team based purchasing and selling decisions. The exercise was broken into three separate games. The first game is a group based on purchasing strategies. In this activity, they learn the basics of making purchasing decisions while considering demand, holding and ordering costs, and variable (tier based) pricing. The next two games are round based games. In the class, teams are formed (an even number) and half the teams are assigned to be a purchaser while the other half are suppliers in the first round. Each team must make decisions that will make them better off than other teams. Once the first round is complete, the teams switch roles with a different scenario and continue negotiating. The team with the most profit is the winner of the exercise. The purpose of this article is to describe the structure of the exercise, how we deliver it as a pedagogical game in our classes, and share this easy to apply activities that capture the dynamics of negotiation and the resulting benefits to supply to supply chain members.

The Purchasing Game

The purchasing game is the first game that is played in the set of exercises as it was designed to make students think about the mechanics of purchasing certain quantities while occurring holding costs. The game is based on a single excel sheet that was posted on the class learning page. The excel sheet acted as a calculator to help students understand the basics of creating such a plan. The importance of having the class utilize this calculator is beyond the time savings. It allows student groups to look how a single change impacts the entire strategy.

The valuable lesson of this purchasing game was to give constraints to the team and see how each group handled the situation given to them. In the dry run, the students seemed to learn much quicker than if formulas and other methods were forced onto them. The game encompassed a forecast of demand that they need to have in order to avoid a stock out. The prices were also fixed in a tiered base that gradually increased as they ordered more. The idea behind this was to also incorporate a holding cost that would ensure that students to only order the optimal amount per the cost savings that could be contributed to the next month's high demand.

At the first look, students seemed to be engaged through the excel interface and implementing different scenarios to see how the costs were impacted. As the students continued to play and adjust with the figures, they slowly learned that what corresponded with each other and how to build the most optimal purchasing strategy. This exercise was designed to teach the teams the basics of the upcoming exercise, the negotiation exercise.

The Negotiation Exercise

The negotiation exercise consists of two different roles for the teams. Each role is played by each group one time and teams are split to ensure that equal groups exist for each role (it comes important when the students start to engage). The exercise was started by emailing the groups right before the class, several documents that they would use in the exercise. This was done on purpose, as opposed to posting them on our learning platform, as the exercise is designed to make competition and it would less the competition if the students could determine the costs and other factors of the competing teams. The only thing was all the purchasers had the same document with the associated costs and the same goes for the suppliers. This was done to keep the teams at a competitive level, without them knowing they are in the same situation.

In the beginning of the first round, a detailed explanation was given how to use the similar purchase calculator the students used previous, well getting introduced into the seller's position and the various cost functions that they must consider. The calculator was designed through Google Sheets and attached in the email that was sent to them in the beginning of the class. This is key when trying to get students to engage with the exercise and their group. It also allowed faculty to examine what stage all the students are at, and discuss common problems throughout the activity. Google Sheets allowed for quick and easy duplication for each team to have their own unique workspace.

The first round of the game started with each team in their respective roles and students reading the cost functions and entering the required elements into their calculator. Once the students understood their objective and thought about perspective strategies; the negotiations began. In this negotiation phase, most purchaser teams attempted to make a deal at half the original expected deal, while the suppliers attempted to sell their product at a one to two dollars above the expected price point. As the different teams went around the room discussing with the original teams "competitors" some teams were able to achieve deals early on in the game.

The objective was to make a 26-week or six-month purchase strategy. Teams originally started making deals for each week individually, and then most of them caught on to the fact that if they purchase less frequently in higher quantities, the supplier was willing to see for less per unit. This was when the competitive factor of the game truly set in. The calculator in this game follows the same reasoning as the purchasing game. It was designed to allow students to alter the numbers and visually see how the each negotiation changed. Once the teams completed the first round, the teams switched roles and were given a different scenario to analyze.

These experiential learning exercises has been delivered in Supply Chain Management class at the undergraduate levels. These purchasing and negotiation games in the classroom setting appear to be a good learning experience for students in terms of understanding negotiation strategies and pricing, ordering, and inventory decision.