A Team-Based Approach to Quantitative Managerial Decision Making

OBTC Teaching Conference for Management Educators

Providence College

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Abstract

The purpose of this exercise is to introduce management students to team-based, quantitative decision-making. Participants will create basic formulas in Microsoft Excel, working through a scenario related to a six-step decision-making process: identify a problem, identify decision criteria, allocate weights to criteria, develop alternatives, analyze alternatives, and select an alternative (Stevenson, 2015). This activity will force participants to work their way through a real-world business problem while developing team-building skills. Additionally, groupthink will affect the decision-making process, leading participants to gain a healthy skepticism of purely data driven decision-making models.

Keywords: Problem based learning, quantitative, decision-making, management education

Teaching Implications

Employers are seeking business management graduates who possess technological, critical thinking, and communication skills (Mohapatra, 2016). This exercise addresses each of these skill areas via a problem-based learning activity. The six-step decision-making process (Stevenson, 2015), quantitative decision-making, and group dynamics, are often discussed in principles of management courses and they will be addressed in this session. However, these three concepts are not usually integrated into one exercise. This exercise will demonstrate how quantitative, or data driven, decision-making is subject to bias while demonstrating how useful it can be to reach group consensus. In this session, participants will play the role of college administrators, IT personnel, and faculty that must decide upon a learning management system (LMS) to purchase. The teams will be assigned four different LMSs to compare. They will rank each LMS alternative and determine weights based on the following criteria: affordability, mobile usability, grading functionality (faculty), assignment functionality (student), and interface with IT software. Each team must reach consensus when ranking alternatives and assigning weights. Individuals within each group will be given a hidden agenda, biasing the decision-making process. While quantifying the alternatives and weights, each team will be subjected to groupthink. Often, groupthink is thought of as one dominant person overtly affecting the team decision-making process. However, groupthink is often subtle and team members are not fully aware that it is happening.

Additionally, each group will score and weight alternatives/criteria in a Microsoft Excel spreadsheet. They will learn basic math formulas, how to copy and paste formulas throughout the worksheet, and how to use the verify formulas function.

The learning objectives are:

1. Use critical thinking, technology, and teamwork to analyze a business scenario
2. Learn how to use basic Microsoft Excel formula functions
3. Apply quantitative reasoning to the decision-making process
4. Be cognizant of how groupthink may affect the team decision-making process

Session Description and Plan

This session will begin with an introduction to the decision-making process and an overview of basic Excel formulas (20 minutes). Participants will be assigned to teams and given the Learning Management System (LMS) problem to solve. Each team will create a spreadsheet (5 minutes) in which they will begin ranking alternatives and criteria (25 minutes). Individuals in the team will be given certain roles/agendas (i.e. administrator) that will influence their collective rankings. For example, administrators will weight criteria differently than the faculty. After the spreadsheet is filled out, each team will use Excel formulas to multiply criteria weights to each alternative, then will add each score together, to arrive at the highest totaled alternative. The groups will then compare their results (10 minutes). During the debriefing process, the participants will be asked if their quantifying method was impacted by any of the team members. Often, students do not really notice as they claim that the process was a “group effort.” At this point, we will talk about how individual bias affected the ranking process. The data created from the exercise, then, is perhaps valuable, but without bias. The teams will then identify potential benefits and uses of quantitative decision-making.

Application to Conference Theme

This learning experience is directly related to the conference theme: *Navigating the Changing Currents.* First, this session creates an effective learning experience since participants must solve a real world business problem using the technique provided in the session. In regard to pedagogy, the instructor will use a mix of interactive lecture (33%), team based learning (50%), and reflection (17%). Students will also use evolving technology (Excel 2016). The skills learned in the session are relevant to business professionals today.

Unique Contribution to OBTC

This presentation has not been presented before. I have utilized this exercise in my Operations Management class but have not yet presented it at a conference.

References

Mohapatra, S. (2016). An exploratory study of management graduates’ awareness of employability skills. *Indian Journal of Higher Education*, *8*(1), 86-96.

Stevenson, W. J. (2015). *Operations management* (12th ed.). New York, NY: McGraw Hill.