Using Open-Ended Cases to Enhance Active Learning

Björn Oskarsson
Logistics and Quality Management
Dept. of Management and Engineering
Purchasing and Logistics – a brief introduction

**Logistics** is about managing flows and storage in the system to achieve **high service** at a **low cost**

![Diagram showing supply, production, distribution, suppliers, customers, and focal company]

**Purchasing** deals with **selecting, contracting and handling suppliers** in a way that contributes to:
- A reliable supply
- Low costs
- Good quality on end products
- Contribution to product development

**Purchasing education is strongly linked to the complex reality of organisations**
Applied skills vs academic education

• **Real-world** problems are often complex and ill-structured with incomplete problem specifications and/or multiple valid solutions. (*Ringenberg & Vanlehn, 2014*)

• This should be reflected in the problems given to students. (*Savery, 2006*)

• One way of “Active learning”, recommended for connecting theory and reality is **cases**, preferably combined with **role-playing** and activities in **small groups**. (*Bean, 2011*)

• To deal with ill-structured problems, cases should be **realistic** and **open-ended**, to create student engagement. (*Nesbitt & Cliff, 2008*)
The Purchasing Course at LiU

Focus: Purchasing’s contribution to profitability and competitiveness

Program and students

Bachelor level
Master level

6 ECTS Credits
100+ stud./year

Students from two 5-year programs:
- Industrial Engineering
- Mechanical Engineering

The course is included in a ‘major track’ in Logistics management, but is also eligible for students following other majors.

The first (and only) purchasing course for these students

Structure

3 compulsory group assignments
15 lectures
7 weeks

Written exam

699x32 to 774x52
Assignment 1 – Total Cost Analysis

Swedish company buys tools for manufacturing operations

3 suppliers to choose from

Task: Suggest supplier based on a total cost analysis

Step 1

Decide which costs to include
(price; transport; inventory carrying; order adm.; supplier relation costs etc.)

Decide how these costs should be calculated / estimated → which additional data they would like to have.

Request for data
Assignment 1 – Total Cost Analysis

Request for data

→ additional data handed out concerning...

...the buying company

...the products

...the suppliers

...miscellaneous

→ The groups have **different data sets** as input to their calculations, and most groups do not get everything they’ve asked for.

**Step 2**

They perform their calculations  →  Written report
Assignment 2 – Supplier Evaluation

A firm wants to engage a consultancy company to analyse their logistics operations and suggest improvements.

3 potential suppliers (consultancy companies) are identified

**Task:** Suggest supplier taking all aspects into consideration, i.e. quantitative as well as qualitative aspects.

The AHP model is to be used (available in Excel)

---

**Step 1**

Decide which aspects to evaluate
→ Main and sub criteria

Allocate weight factors to all criteria

Prepare for the ‘hearing’

**Step 2**

Hearing with each supplier

- Presentations and questioning

**Step 3**

Compare the suppliers to each other and add ‘scores’ in the AHP model

Choose supplier

*Written report*
Assignment 3 – Negotiation

2 companies (buyer and supplier) are involved in a joint product development project.

When the product is ready for delivery, the customer must postpone some months due to production problems, but still wants to be first on the market. → Disagreement

The student groups represent one of the parties

Task:
Reach an agreement!

Step 1
Plan and prepare
- Goals
- Strategy
- Tactics

Step 2
Negotiation plan
2 hour negotiation
Agreement (?)
Common theme – ‘open-endedness’

Open-ended assignments

• Basic facts and tasks are given
• Based on this, the students must make active choices:
  • Which costs
  • Which evaluation criteria
  • Negotiation goals
  • Etc…
• Therefore, they reach different conclusions

Input from:
- Literature
- Lectures
- Personal preferences
- Interaction within the group
Effects of the ‘open-endedness’

Big spread in results – an example from assignment 3

Economic compensation (M$)

To Cavalier

To Warwick

2017

2016

2012
The importance of feedback

The open-endedness is confusing to students

Feedback is given on the assignments

- **To each group**, concerning…
  - The assumptions they have made
  - The clarity of their argumentation
  - Their self-awareness (of weaknesses etc.)

- **Collectively**, during lectures, showing…
  - Alternative solutions
  - How to get around certain difficulties
  - The relation between the assignment and the ‘real world’

3 compulsory group assignments

P = Introduction
F = Feedback
General feedback addressing the connection to the “Real World”

There is not one single correct outcome

• Assumptions and choices have to be done → important to:
  • Be clear about these
  • Reflect on what influence they have
  • Be able to give arguments for the suggested solution

• All desired data is hardly ever available
  • Must take decisions with limited information

All situations are unique

• The specific situation must guide the analysis

You’re never alone

• There are always different stakeholders, often with different opinions
  • The ‘objective truth’ rarely exists
References


To conclude...

Initially, open-ended cases are frustrating to students.

Feedback is important to turn frustration into appreciation.

What about you:

- Experiences from open-ended cases?
- Experiences from collective feedback?
- Any questions?