Engineering Technology Students’ preference of presented information
Interactive Methods

Research Questions

What is excellence in engineering education from the students perspective?
Are the views proposed by educational researchers in agreement with undergraduate engineering students’ perception?
How students define educational technology?
What are the students’ perspective on educational technology and educational methods, goals and objectives?

Objectives

Understand the views and perceptions of engineering undergraduate students on excellence in engineering education educational technology

Methods

Participants
- 22 undergraduate engineering students
- 7 females and 15 males

Focus Group
- 1 hour long each
- 3 to 8 participants per group
  - Individual Brainstorming
  - Group Discussion

Data Analysis

Content Analysis Technique:
- Method used to analyze text data and making inferences from data to their context
- Keyword Frequency Count:
  - Main keywords: Summarize and group the answers into meaningful categories
  - Recording units: Nouns, verbs or adjectives written by the participants when answering each question

Study Questions:

“In the next 3 minutes write 10 words or phrases that comes to your mind when you hear the following phrases”: Excellence in engineering education, educational technology, students’ role within the engineering college and professors’ role in the engineering college.

Engineering Education

Characteristics: Personal and professional skills, personal characteristics, resources, professor characteristics, need for examples or applications, hard work, knowledge, community, competition, hands-on, cost, degree, grades, pressure, accreditation and advising.

Methods

Participants
- 22 undergraduate engineering students
- 7 females and 15 males

Focus Group
- 1 hour long each
- 3 to 8 participants per group
  - Individual Brainstorming
  - Group Discussion

Data Analysis

Content Analysis Technique:
- Method used to analyze text data and making inferences from data to their context
- Keyword Frequency Count:
  - Main keywords: Summarize and group the answers into meaningful categories
  - Recording units: Nouns, verbs or adjectives written by the participants when answering each question

Study Questions:

What are the goals of teaching engineering and what types of skills and attitudes do students need to learn?
Which methods are used to present information, and how would students like information to be presented?
What are teaching methods that work in the classroom?

Brainstorming

Students’ Role

- Learn
  - prepare for the future
  - Be a student
  - mentor others
  - contribute
  - develop skills
  - represent their race or college
  - earn a degree
- Participate in extracurricular activities make friends
- network
- pay tuition
- compete
- experience college
- maintain good grades
- do research
- make good use of resources

Professors’ Role

- Teach &Educate
  - Help & Mentor
  - Work in research
  - Encourage & Motivate
  - Model inspiration
  - Facilitate
  - Learn
  - Enforce & Grade
- Explain & Prepare
- Develop personal relationships
- Create tests/homeworks
- Understand
- Share information/knowledge
- Available
- Contribute
- Be up to date with real world and technology

Group Discussion

Research Perspectives

Research Perspectives

Characteristics: Advanced, different from lecture, engaging and interactive, hands-on, providing independence, could be used as help, increasing and facilitating knowledge, enhancing level of understanding, being up-to-date and varied.

Categories

Characteristics

- Advanced
- Different from lecture
- Engaging
- Interactive
- Hands-on
- Providing independence
- Use to increase understanding
- Teaching

Examples

- Creative learning, used for scientific data, learning and problem solving
- Used in laboratories and classroom, as resources for learning
- Handouts, work samples, class websites and providing new possibilities for studying

Tools

- Specific names of tools: board, powerpoint, class websites
- Education and computers, use of video, programming software and course related software in laboratories, such as Power Point

Conclusions

Students are eager to participate, share their insights and give input in the system.

- Emphasized both the physical and learning aspects of educational technology (Educational technology is not only multimedia and audiovisuals but it is a process of teaching and learning).
- Other than the word “students”, use of “examples” was a recurring theme throughout the responses.

The “Research and Scholarship in Engineering Education: Poster Session” was sponsored by the office of the Associate Dean for Undergraduate Education.