



# Developing an Enabling Pedagogy for Fostering Engineering Undergraduates' Entrepreneurial Orientation

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# OVERVIEW OF THE PRESENTATION

- ▶ BACKGROUND TO THE STUDY
  - Engineering Essence
  - Entrepreneurial Orientation
- ▶ PURPOSE OF THE STUDY
- ▶ PEDAGOGIC MODALITIES
- ▶ ADUMBRATING AN ENABLING PEDAGOGY

# Background to the Study

- ▶ Part of my Master's study
- ▶ Engineering Essence - each of its activity has to meet the following conditions:
  - Result in human benefit, that is, lead to development of new or improved things (*ingenium*)
  - use and lead to generation of new, useable knowledge that leads to new possibilities (*scientia*)
  - Result in the development of new made things and search for higher designs of existing things (*techne'*)
  - Create new ways of doing and working (*praxis*)

# Background (Cont..)

- ▶ Entrepreneurial Orientation – based on these conditions for an engineering activity, it becomes vital that students get orientated on the following entrepreneurship behaviours:
  - Initiative-taking
  - Innovation – taking a unique idea to tangible results
  - Effectuation –taking decisions under conditions of uncertainty and complexity
  - Taking calculated risks

# Pedagogic Modalities

## 1. Invisible Progressive Pedagogy

### Key Characteristics

- Competence-oriented (acquisition)
- Intra-individual

### Key Theorists

Piaget, Chomsky

### Curriculum and Knowledge

- Weakly framed – content, sequencing, pacing flexible
- Strong evaluation (fixed norms of achievement)
- Weak knowledge classification

Agency – active, choosing student, facilitating teacher

## 3. Invisible Radical Pedagogy

### Key Characteristics

- Competence-oriented
- Intergroup

### Key Theorists

Freire, McLaren (eliminates socially-empty trainability)

### Curriculum and Knowledge

- Weakly framed –content, sequencing, pacing relaxed and flexible
- Evaluation based on emancipation from oppression
- Knowledge - very weak boundary

## 2. Visible Conservative Pedagogy

### Key Characteristics

- Performance-oriented
- Intra-individual

### Key Theorists

Behaviourists such as Pavlov, Skinner

### Curriculum and Knowledge

- Strongly framed – content, sequencing and pacing rigid
- Strong evaluation (fixed norms of evaluation)
- Strong boundary maintenance, formal sites appropriation

Agency – passive student, teacher as sage

## 4. Visible Radical Pedagogy

### Key Characteristics

- Performance-oriented
- Intergroup

### Key Theorists

Social Psychologists such as Bandura

### Curriculum and Knowledge

- Flexibly framed, collective access to and participation in experiences of a community of practice (peripheral to full)
- Knowledge – boundary maintenance moderate

Agency – active student, negotiating teacher

# Adumbrating an Enabling Pedagogy

- ▶ Competence –(gain in ability) rather performance (gain in knowledge)
- ▶ Intergroup – students' teams generate new ideas and test them out in real situations using the principle of affordable loss.
- ▶ Flexible framing of content knowledge (selection, sequencing, pacing, pitching)
- ▶ Weak classification of knowledge (exposure to multiple sites of knowledge appropriation)
- ▶ Showcasing prototypes as evaluation strategy