

## Recruitment, Retention and The Public Image of Engineering

DCU September 2007  
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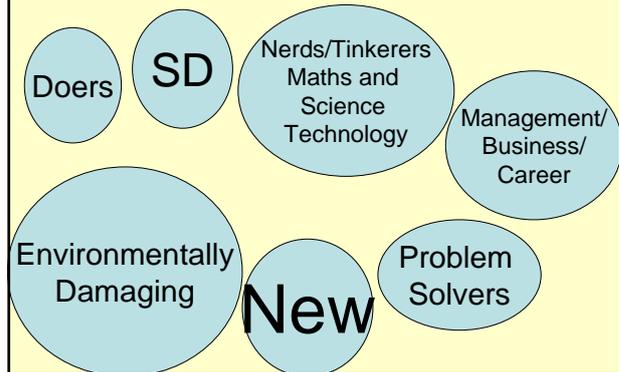
## Context

- Demographic change
- Falling interest in engineering
- Falling entry numbers

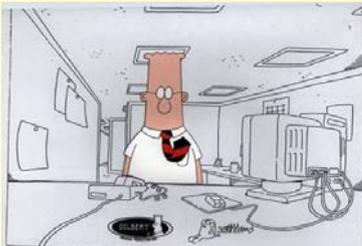
190 of 5623  
girls with  
450+ points

Are we contributing to an informed public image of engineering which enables parents and their children to understand that this is a career that will allow them to make a meaningful contribution to society and be fulfilled?

## Images of Engineering



Do You Really want to be an  
Engineer?



## Engineering @ DIT

- Multi-disciplinary: 5 Schools
- 2500 Fulltime
- Hons Degrees (Level 8)  
Ordinary Degrees (Level 7)
- Emphasis on “Hands On”

## Data

Year	Acceptances	Respondents
2003	653	440 (67%)
2004	747	478 (64%)
2005	651	444 (68%)

## Questions?

- Why engineering?
- How do they get to engineering?  
–Influencers

## Who are they?

Male School-leavers 90% +

Women:

–70% are in Product Design/Civil Engineering or want to do Structural

## Why Engineering?

1. ...how things work/build (63%)
2. ...a good career/pay/travel (55%)
3. ...designing things (34%)
4. ...liked engineering @ school(15%)
5. ...like maths and physics (15%)

## Women

- More likely
  - ...designing things (48% v 31%)
  - ...like Maths and Physics (20% v 12%)
- Less likely
  - ...career or well paid (32% v 48%)
  - ...build things(26% v 17%)
  - ...liked engineering at school

## Liked Engineering @ School

- 66% of those who studied ranked this answer 1<sup>st</sup> or 2<sup>nd</sup>
- Effect seen at all levels unlike “*Liking maths and physics*”
- Difficult to combine science and engineering
  - 23% of CFY and PE entrants (2004)

## Society 2006/7

“Engineers make a positive contribution to society”

1<sup>st</sup> or 2<sup>nd</sup> preference

7%  
15% of girls

Some preference

33% of females  
25% males

## Strong Positive Influence

(2004 and 2005)

1. Parent
2. CGC (90% had CG)
3. Family Member / An Engineer
5. Engineering Teacher
6. Current student of DIT
7. Maths Teacher

## Are Students Prepared?

- 43% no “clear understanding of what their course was about before they came”
- Concerned about mathematical and scientific content and long hours

“expect practicality and find abstraction” [Edwards 2003]

## Intrinsic features of engineering

‘to work in an area that is personally satisfying and fulfilling’ [Smith and Monk 2005]

Emphasis on other rewards

Prefer sensing mode of perception

The concrete, practical and the immediate

Practice → theory

Theory → practice

## The Family Key influencer

But

“The perceptions of most students and parents were negatively influenced by poor knowledge of ...engineering”

“...all admitted that they really did not know enough about it”

Engineers Ireland: Focus Group Research 2005

## Engineer at School

Engineering as doing

More want to do it

Hard for young women to do it

An adequate introduction to engineering?

Engineering needs to be perceived as innovative, proactive, and challenging, where the **opportunities to use one's creative abilities are manifold**. We need to make sure that our target audiences feel excited and inspired by the prospects of working in engineering, and confident that they **will be admired and respected for their contribution to societal development**

Engineers Ireland November 2005

## Creative Engineering

- Not just maths and not just “hands on”
- Emphasis on intrinsic features of engineering
  - Problem solving with real outcomes that affect the quality of life
  - Start by focusing on the totality of what engineers do rather than what you need to do it

## Creative Engineering

Attract those who have not yet developed their maths and science skills but have abilities to make good engineers

- Address the maths issue
- Ladders

## Creative Engineering

Force us to consider how “to make the creative part of engineering more evident early on” [Wulf 1998]

- Address the needs of those with a sensing mode of perception
- Bridge gap between expectations and programme content