3TU.Centre for Engineering Education

Excellence: how to utilize diversity?

Abstract

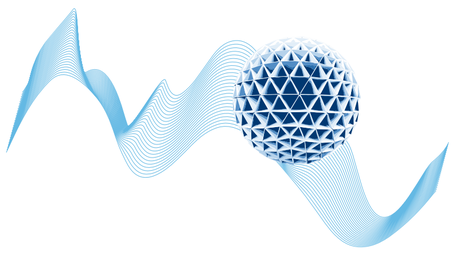
ATLAS, the Academy of Technology and Liberal Arts & Sciences at the UT, enrolled its first students in 2013. This University College (honours BSc) has a novel approach to engineering education.

Objective

The UT wants to create a new, selective honours bachelor programme: a university college for top β + γ students with a broad orientation. For contributing to the society of tomorrow they have to develop the attitude of thinking differently.

Context

Our society asks for **new engineers**, not hindered by disciplinary or cultural barriers. **Top students** ask for open outlook and multiple options. The UT, with its "high tech, human touch" credo, combines both on campus.



Practice

- An interdisciplinary programme for top students that vary in the direction of their **ambition** (future in science or in social science) and in **background** (cultural, learning approach, multiple intelligence)
- Do justice to this diversity: "they aren't dumb, they are different"
- Diversity is acknowledged in credited Personal Pursuits
- Aim is the **steepest learning curve, customized** to every individual student
- Meaningful learning, by team projects (related to the grand challenges of the future) in varying group sizes
- Six learning lines to acquire academic skills through personal aims
- Personal Development Plans and Self-Evaluations every semester
- **Feedback** (from experts and peers) **instead of grading**
- Residential college: ATLAS community, and Honour code

Results

- A diverse population: some are excellent at combining α, β, and γ sciences and are real creative thinkers, while others excel in one science and are able to relate that to the other sciences in a meaningful way. Both are in for creating innovative solutions to real-world issues.
- Students need and expect timely (individual) guidance
- Students need to "learn to learn" and to self-regulate
- "More is more" vs. "Less is more": to generalise and contextualise is a core competence
- Diversity in prior knowledge and educational background makes for a very diverse student population: it is a challenge to monitor their progress

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