

ISSMGE Time Capsule

Discoverer's Report

Geo-Engineering Education Technical Committee TC306

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Asociación Costarricense de Geotecnia (ACG)

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Introduction

Discoverer:

- María José Camacho Cordero

Introduction:

- Young civil engineer from Costa Rica
- Passionate about geotechnical engineering and education

Current Role:

- Professor at the University of Costa Rica, Civil Engineering Department

Interest Areas:

- Quality Assurance Systems in Geotechnical Laboratories
- Fostering innovative teaching methodologies within civil engineering

Why the TC306 Contribution?

Knowledge transfer:

- Experienced engineers possess deep insights into soil mechanics, foundation design, and risk assessment, which can be difficult for younger engineers to fully grasp without mentorship and practical experience.

ACG Young Professional Committee:

- The Costa Rican Geotechnical Association (Asociación Costarricense de Geotecnia, ACG) Young Professional Committee works to boost education in geotechnical engineering across the board and make it easier for everyone to tap into the insights and lessons learned from years of experience in the field in Costa Rica.

Own interests:

- I'm personally interested in everything related to education and improving as a teacher, so this contribution grabbed my attention almost immediately.

Main takeaways

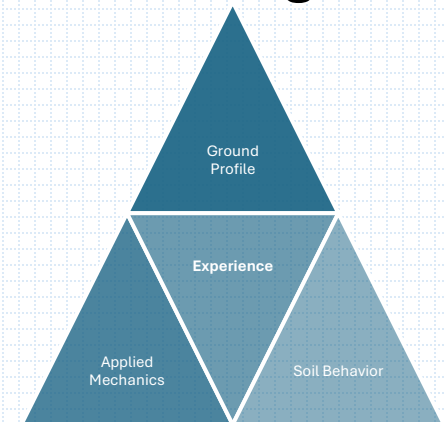
Teaching vs. Systematic study of teaching

- The contribution initially and accurately highlights the difference between teaching and the systematic study of teaching. In summary, it presents the components of the systematic study of teaching by Prof. John Burland (1987): Identifying student misconceptions and creating educational material to address those misconceptions.
- Firstly, active student feedback and effective in-class assessments are crucial for identifying these misconceptions accurately regarding the understanding of physical processes.
- Once identified, the educational material aimed at addressing these misconceptions should undergo student feedback to ensure its effectiveness.
- In general, these components highlight that teaching is an evolving and dynamic process involving both teachers and students.

Main takeaways

Key aspects of teaching

- Burland's thesis (1987) presents four key aspects in the teaching and learning of geotechnical engineering. These are illustrated as a triangle, with Ground Profile, Soil Behavior, and Applied Mechanics representing the primary challenges in teaching.
- In contrast, experience is positioned at the center, serving as a mean to incorporate empiricism and precedent, complementing theoretical knowledge.
- These key aspects outlined by Burland (1987) present both a challenge for students and a responsibility for teachers to effectively prepare future professionals for the field.
- Moreover, they serve as a tool to enhance the transfer of knowledge between generations of professionals.



Main takeaways

Access to educational material

- Overall, the contribution highlights the importance of various sources of educational material in geotechnical engineering on a global scale.
- It is hoped that Costa Rica will eventually adopt and promote the compilation and dissemination of high-quality educational resources among professionals, whether they are students or teachers.

Thank you!

Link to the HTC Contribution: <https://htc.issmge.org/contributions/technical-committees/tc306-geo-education>