

# **The Challenge of Introducing a Teaching Innovation**

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## **What is it about?**

Innovations occur in almost all aspects of life including education. In tertiary education setting, implementation of a teaching innovation often does not happen spontaneously. Improving one's teaching approach seems to be far more difficult than perfecting one's research method, for example. This talk will describe our efforts to introduce academics in Physics and Astronomy to innovations in physics education. These academics are engaged in cutting edge research in their field. Some of them have been awarded with substantial grants in recognition of their excellence in research. However, their teaching approaches remain traditional and seem to be unaffected by extensive resources and results from physics education research

## **Why is it important?**

The traditional teaching method has been shown to contribute to problems in learning physics such as students' tendency to memorise formulas, the persistence of incorrect prior knowledge and inability to solve problems in real life contexts. Numerous innovations in teaching physics (e.g. Hake, 1998) are proven to overcome those problems with resulting improvements in conceptual understanding. Nevertheless, this extensive collection of ideas, methods and materials convinces few academic staff to modify their teaching approaches. These individuals who are highly creative and innovative in their research seem to display the opposite behaviour in their teaching. Unless we understand the factors influencing people to accept innovations (discussed in e.g. Rogers, 2003 and Fullan, 2001), we will not be able to reap the results of the innovations.

## **How the session will be run?**

A brief introduction to physics education research will be presented. This will be followed by outlining our efforts to introduce academics to innovations in teaching, and our survey of the perceptions of academics on recent teaching elements. The workshop participants will be invited to share their ideas and experiences and to comment on these. The responses will be summarised to inform effective actions to persuade academics to improve their teaching.

## **References:**

- Fullan, M. (2001). *The New Meaning of Educational Change*, 3<sup>rd</sup> edition. New York: Teachers College Press.
- Hake, R.R. (1998). Interactive-engagement versus traditional methods: A six-thousands-student survey of mechanics test data for introductory physics course. *American Journal of Physics*, 66, 64-74.
- Rogers, E.M. (2003). *Diffusion of Innovations*, 5<sup>th</sup> edition. New York: Free Press.