

# Knowledge production in Engineering Education

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## ABSTRACT

*Keywords* – knowledge production, teaching, research, practice

Please indicate clearly the type of contribution you are submitting: X \_\_\_ hands-on, \_\_\_ explore.

## Background

Universities of applied science (UAS) in Denmark are responsible for the professional education of nurses, public school teachers, and bachelor-level engineering education. Since 2014 (Danish Parliament 2014), the UAS have been engaged in research activities. Following the OECD Frascati manual (Frascati manual, appendix 2), the research undertaken by the UAS should be ‘applied research’ – defined as “original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific, practical aim or objective.” Furthermore, the executive order states that the research should be conducted in “close proximity with labor market employers, other educational and knowledge institutions, and the surrounding society” (Danish Parliament 2014, §5).

Various drifts in higher education – the academic, the applied and the third mission - have been described in the literature. The tendency to transform former occupational non-university education to resemble more prestigious university education has been referred to as academic drift (Tight, 2016). Recently, the academic drift has been accompanied by an applied drift (Bleiklie, 2005) that transforms traditional academic standards of knowledge production from mode 1 research to mode 2 research. Finally, a third mission (in addition to the teaching and research missions) has been observed that provides knowledge transfer directly to companies and society in general (Laredo, 2007; Compagnucci & Spigarelli, 2020). The third mission has been accompanied by pedagogical and didactical approaches, e.g. problem-based learning and the CDIO initiative that stress the practical basis of knowledge acquisition. Academic, applied and third mission drifts in higher education tend to reconfigure the so-called research-teaching nexus (Tight, 2016) where the forces of the drifts are often discussed as research drift and teaching drift, respectively (Clark, 1994).

But how is this applied at UAS? We have recently explored how knowledge production is enacted in the teaching-research-practice-nexus in two UAS in Denmark. The results identify that four discursive positions in this nexus are enacted and that three discursive positions were unavailable (Buch *et al.* 20XX).

In this hands-on session, we will present our results from a recent study. Furthermore, we will discuss how the nexus between teaching, research and practice is enacted or not enacted at Danish Universities.

### **Set-up**

#### ***Introduction (10 min)***

At this session, the authors will set the scene by introducing the research question hinted at above and describe why this is relevant and which dilemmas they see based on their study.

#### ***Hands-on activity (40 min)***

##### ***Part A (20 min):***

The participants will be asked to relate knowledge production practices carried out at their own institutions to the teaching-research-practice-nexus.

##### ***Part B (20 min):***

Participants will then be divided into small groups. Each group will discuss how using the nexus as a practical tool can provide insight to inform strategies for navigating in an educational world with conflicting drifts.

#### ***At the end of the session (10 min)***

At the end of the session, there will be wrap up of the discussions. The authors will discuss the results of the hands-on activity and compare them with their own findings.

### **Expected outcomes/results**

The expected outcome from the session is greater awareness of how to navigate in a setting with conflicting educational drift.

### **REFERENCES**

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