

PBL and learning of social responsibility

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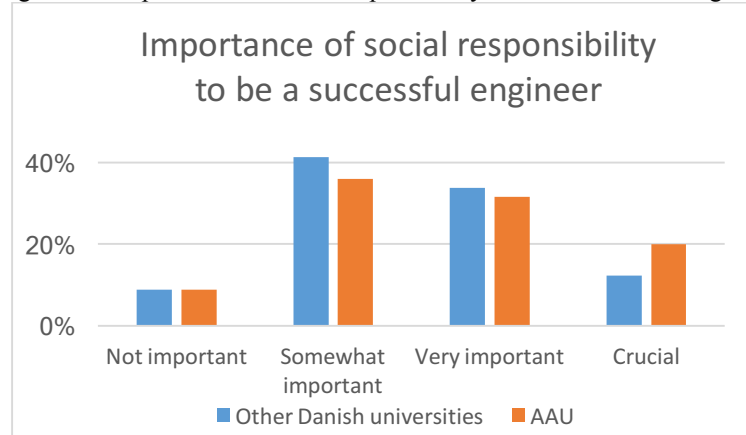
In the origins of the Danish problem based and project organized models, the development of social awareness was one of the main ideas (Illeris, 1974; Servant, 2016). In an engineering and science context, Aalborg University (AAU) is the only Danish university, which has been founded on the pillars of problem based learning (PBL). Still, after more than 40 years, AAU emphasizes contextualization of engineering and science problems in a Science, Technology and Society (STS) perspective. As such STS is an integrated part of the curricula across programs in the first year of the Bachelor study at AAU. The main purpose of this extended abstract is to stress the connection between PBL and social responsibility investigated in a Danish context, and on that foundation initiate further discussion of how educational institutions can foster students' social responsibility.

Empirically, we draw on data from the research project Program of Research on Opportunities and Challenges in Engineering Education in Denmark (PROCEED), and its successor with focus on employability: PROCEED-2-WORK. These projects represent a longitudinal survey study following a cohort of all Danish engineering students enrolling in engineering bachelors in 2010. The students have been surveyed in 2010, 2011, 2015 and lastly in 2016 after most of them had been on the labor market for close to a year (2010 N=1614, 2011 N=1147, 2015 N=1221, 2016 N=591). For this specific purpose, we use results from an institutional comparison of the graduates from Aalborg University compared to the rest of the Danish engineering students just when they are about to enter (2010) and leave (2015) their engineering study.

Previously published findings from the 2010 data revealed that there were slight differences in the subpopulations at the beginning of the study, AAU has a higher percentage of female and foreign students as well as students from non-academic homes and with no engineers in their immediate families (Kolmos & Koretke, 2016). Just before graduation, there were no significant difference between AAU students and other Danish engineering students in regard to technical knowledge and professional methods. However, there were significant differences in the areas of society and environment, as well as business and organization, where AAU engineering students assessed themselves to be better prepared to use these in their future work place. In terms of social responsibility, more students from the

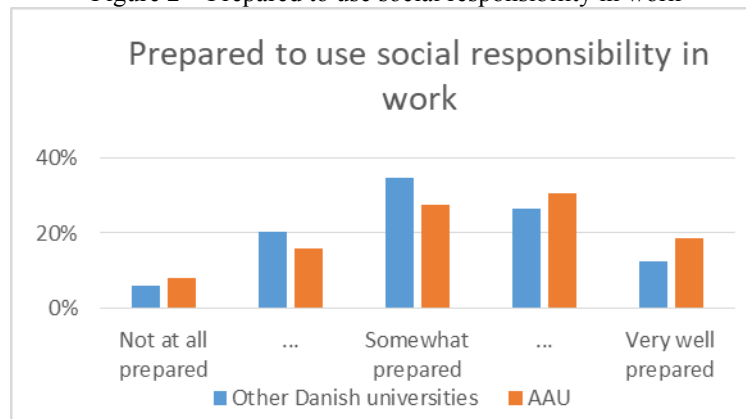
fully integrated PBL environment at Aalborg University ascribe social responsibility crucial importance.

Figure 1 – Importance of social responsibility to be a successful engineer



Furthermore, more students at AAU, compared to the average at the other Danish universities, consider themselves to be very well prepared to use social responsibility in work.

Figure 2 – Prepared to use social responsibility in work



These findings motivate several questions for further research and discussion. How does student’s background motivate social responsibility in their line of study? How does the starting point of PBL, the authentic problem and its contextual grounding in society, bring attention to the social responsibility of engineering? And can the act of self-directed problem design explain the increasing focus on society and environment, as proposed by Kolmos & Holgaard, 2017. Such questions motivate attention to the interplay between PBL and social responsibility; an interplay, which based on the Danish case have shown to be effective.

AAU, Denmark, has the highest degree of PBL in their studies compared to other Danish universities – and that seems to matter in terms of educating socially responsible engineers.

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