

# Chapter 17

## Setting up a Learning Environment in an Interdisciplinary Professional Collaboration

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### ABSTRACT

*Collaboration between universities, industries and other professional societies enables students to enter interdisciplinary learning environments through joint research. Stakeholders can attain their objectives through collaboration and a range of competitive advantages in own business sector. From an economic perspective, the fruits of research and development such as intelligent property are motivators for collaboration. From an educational perspective, this three party collaboration provides opportunities for situated learning that link theoretical studies with practical research work. This chapter discusses the contributions to the learning environment from collaboration between education, research and industry, and their impact on the professional growth of engineering graduates in the field of Material Science. Through self-reflection on experience, author argued that by combining theoretical knowledge from university education and research with practical skills and experience gained from the industry, students develop individual empowerment and bring future business advantages to the industries where they would later work.*

### INTRODUCTION

#### The Purpose of Collaboration in Education

Most global businesses are highly competitive with companies striving for the positions of being the first, strongest, most innovative, most effective,

fastest growing, most well-known, and highest valued. Although the fields of education, research, and industry may appear to have different aims, they are all participants and competitors in their own business sectors. Education, research and production industries can be regarded as separate elements on their own, but what happens if we put them together as building bricks? Can we use them

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to build competitive advantage in their respective sectors? How do we join forces and organize the individual parties?

This chapter discusses the contributions to the learning environment from collaboration between education, research and industry, and their impact on engineering students in the field of Material Science. Through interdisciplinary professional collaboration, it is possible to create a learning environment that combines academic education with practical operational understanding and experience that can only come from the industry. The distributed knowledge from such collaborations can contribute to creating and maintaining a common interdisciplinary professional community among the participants. The author argues here that by combining theoretical knowledge from university education and research with practical skills and experience gained from the industry, students can develop individual empowerment and bring future business advantages to the industries where they would later work.

## **BACKGROUND**

### **The Learning Environment**

In the State of Qatar, Qatalum (Qatar Aluminium Limited), which is the result of a joint venture between a Qatar Petroleum (QP) and Hydro Aluminium (Hydro), had recently established collaboration with Qatar University to create a learning environment in the field of Material Science.

This new collaboration is modelled originally on a 50 years long Scandinavian collaboration between the Hydro industry and the Norwegian University of Science and Technology (NTNU). The early collaboration effort between industry and academic had results in benefits such as research developments, development and access to improved engineering practice, and better trained academic and engineering staff. The local and international reputation from the early collaboration

motivated Hydro to initiate another industry-academic partnership between Qatar University and Qatalum in Qatar. As Qatar University and Qatalum are newly established in Qatar, both parties aim to secure mutual benefits for development of business and strategy such as future access to well-trained personnel and knowledge from research.

Hydro Aluminium has strong global name recognition in its business sector resulting from its use of cutting edge technology based on highly prioritised research. Researchers in Hydro have valuable experiences of working close with the educational institution - NTNU. NTNU is known for its expertise in Material Science and has a long, highly acknowledged history and widely recognised competence in education. The collaboration between the Qatar University in Qatar and NTNU in Norway aims to develop the former's role in Material Science. Qatalum in Qatar and Hydro in Norway are funding a University Chaired Professor at Qatar University in the specific field of metal production. Hydro has opened a Qatar office to among other support the coordination of undergraduate/postgraduate student activities.

In this chapter, the author reflects on the important issues encountered when setting up this new collaboration and the modifications made to the structure of the original model. The following sections present the concerns of the individual parties and their areas of mutual concern when in building this learning environment that integrates the different parties. The author used semi structured interviews with stakeholders and participants to study the key elements involved in the collaboration process. Excerpts from the interviews are presented throughout the chapter to elaborate on the issues discussed.

- Dr Mariam A. Al-Maadeed, Director of CAM (Centre for Advanced Materials) at Qatar University.
- Dr Geir Martin Haarberg, Professor at NTNU (Norwegian University of Science

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