

## Learning for the Future: From Hands to Minds and Back again.<sup>1</sup>

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### Abstract

The relationship between the conceptual world of academic education, untouched by realities of the practical world, and the practice-oriented world of vocational and professional education with its roots in actual work, is a classic theme both in sociology of knowledge and educational theory. The trajectories of educational systems up to the present have produced hegemonic dichotomies where both academic and vocational education separate knowledge from experience, theory from practice, thought from action. The remoteness of the academic world from the world of work demands new solutions. The traditional contradictions between the work of the hand and the work of the mind, between intellectual and manual labour both in general and inside different professions, face new challenges today. The technological revolution based on ICT is restructuring production at an accelerating speed and is constantly changing labour processes both on the intellectual and manual labour market. This creates new needs for skills in all trades and professions. Old trades vanish, and new trades develop. These developments also lay the groundwork for challenging traditional practices in teaching and learning in educational institutions

The relationship between the conceptual world of academic education, untouched by realities of the practical world, and the practice-oriented world of vocational and professional education with its roots in actual work, is a classic theme both in sociology of knowledge and educational theory. The expansion of education in formal institutions after World War II has created new basic questions about teaching and learning in this era of globalization. In the golden years of the 1960s, the educational system was looked upon as an important factor to increase production. Big investments were made in the field of education by increasing the compulsory attendance in schools and an effort to build out the universities and colleges worldwide.

One of the goals of social-democratic governments in Scandinavia as elsewhere in the post-war period has been the elimination of class contradictions in society by creating equality of opportunity in the educational system. In Norway 60 years ago, universities were the domain of a small elite. Most people had seven years of schooling. Today young people are expected to complete thirteen years of formal schooling before entering the labor market and/or institutions of higher education. This Vocational education was mainly handled through short courses in vocational schools, apprenticeship in workplaces and evening schools. Part of the efforts to promote “equality through education” was to integrate the vocational and academic streams. All learning should take place within a unitary school where vocational and academic studies should be integrated, in terms of both content and physical organization. Apprenticeship

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<sup>1</sup> This article is based on a keynote speech I gave at the founding congress of **European Association of Professors Emeriti (EAPE)** in Athens, Greece 30. September 2016.

Liv Mjelde

should be abolished. This development has created a new set of challenges and new question in the traditional social division of knowledge.

I have done research both in vocational schools and workplaces about the social division of knowledge as, for the past century, it has manifested itself training vocational students and apprentices for the labour market. In schools, the training involves a tripartite division between practical learning in workshops, the learning of vocational theory, that is theory connected to specific trades, and third, academic subjects taught in separate classrooms. One of the main findings in my research in the vocational sector over the past decades is that students and apprentices in the vocational trades prospered and learned when they were in activity in the workshops in the vocational schools or in the workplaces, while at the same time they found no meaning or relevance to the many hours spent in classrooms for general education. They showed up for the workshop classes but they failed to show up for the academic classes. Empirical research conducted by myself and students of vocational pedagogy during the past decades, decades marked in Norway's upper secondary schooling by a decrease in workshop instruction and an increase in the more abstract general curriculum, shows that the contradictions between these types of learning have remained fierce and persistent during the present school reforms in vocational and adult education (Bodin, 2004, Bongo 1999, 2001, Grimestad 1993, Frøland 2004, Mjelde 1993, 2006, Velten 2004).<sup>2</sup>

The empirical data I collected made me pose new questions about my own academic educational traditions and assumption about the contradictions within our formal educational systems. I started to grasp the depth of the problematic when I began to work with the political economy of knowledge, to work with the texts of Adam Smith and Karl Marx and Alfred Sohn-Rethel. Both Adam Smith and Karl Marx treated the social division of knowledge in their major works. Alfred Sohn Rethel made me understand the longevity and fundamental nature of these divisions within in our abstractions:

**“One must take into consideration that the philosophical tradition in itself is a product of the division between intellectual and manual labour and that since its inception, starting with Pythagoras, Herodotus and Parmenides, it has been safeguarded by intellectuals for intellectuals, inaccessible to manual labourers”.**

The Greek/French professor of law at La Sorbonne, Paris 8, Nicos Poulantsas has also inspired me with his writings on the division between mental and manual labour and the development of class society during the past hundred years. My empirical work lately has led me to documentary analysis to gain insights in how this has operated in praxis in the curriculum for the working classes in the expansion of formal learning in schools in Scandinavia.

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<sup>2</sup>Masters and doctoral theses are important for new empirical knowledge in the field. I have been teaching vocational school teachers in writing their Masters Theses at Akershus University College in Oslo for the past decades. I have also developed a Masters Program in Vocational Pedagogy in Kampala, Uganda for vocational teachers from Uganda and South Sudan. Students at the Institute of Sociology, University of Bergen have also made important contributions in later years (see Flaten 1999; Vogt 2013; Olsen et al. 1998; Olsen 2013).

The reason for me stressing these points at this founding congress is that these complexities will be of major concern in all educational systems of the future. I do hope that we as professors emeriti can have an influence on the developments in this time of crisis and social change.

New questions are being posed both in relation to the crisis in the educational systems as well as in the scientific world. A common metaphor for science is a cone of light illuminating or enlightening an expanding area of brightness on a dark map. This image of science, delineated and dismantled by Thomas Kuhn back in 1962, still persists. In this view, the scientist has no personal location and is invisible, signifying disembodied objectivity and scientific freedom.

The scientific perceptions which evolved in Western Europe in the 17<sup>th</sup> century separated hand, mind and heart. Such separations are facing new challenges. One of Rene Descartes' philosophical reflections is the accentuation of a dualistic concept of the human being, stating first, that the human mind consists of non-matter. (res cogitas) in other words, it is immaterial and that the body consists of matter, (res extansa) and second, that these two are not only different, but also separate entities. Human reasoning was thus established as independent of the body. The understanding of the body was based on a biological model that separated body and mind. This has disconnected us from the essential interrelation existing between hand, mind and heart. It allowed the natural scientist to explore the body, not to mention the realm of nature, while leaving the human "soul" and subjectivity or let us call it "mind" to the church.<sup>3</sup>

One problematic is how to transcend Cartesian thinking and view human beings as subjects, as whole human beings, whether they are patients meeting the health practioners or students in schools and universities and when we do our research. **Lived experience and qualitative research are central concepts in this matter.** Another problematic is **ways of seeing. We all have ways of seeing, depending on our own learning and memory.** We can talk about "a **situated gaze**".<sup>4</sup> **Evidence-based medicine** has consequently been a powerful and influential movement within health services and medicinal training during the past decades. **The concept of evidence, however,** is widely debated and enters in to the general battle over ideas.

The battle is fierce. But developments in the natural and social sciences during the past decades are transcending old truths and questioning how the history of science itself relies on dichotomous knowledge traditions, distinguishing theoretical from practical ways of knowing in all kind of professions. New brain research are bringing forth new knowledge about human learning. Eric Kandels researched the **sea slug, Aplysia californica**, 50 years ago and saw a gemlike formal simplicity, which he used to help build the foundations of **modern neuroscience**. Kandel revealed that we learn not by altering neurons, but by strengthening or building new synapses between them. He elucidated the basic mechanisms underlying this vital process, including how this synaptic remodeling embodies the concept we now know as gene-expression: it occurs because genes, along with shaping our bodies and colouring our hair, **constantly alter our brains by responding to experience. "We are who we are, because of what we have learned and what we remember"**. This mirrors the great scientific work and insight of Lev Vygotsky, Aleksei Leontiev and Alexander Luria a hundred years ago. They laid

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<sup>3</sup> Mjølstad. 2015

<sup>4</sup> See Mjølstad, Bente Prytz, Anna Luise Kirkengen, Linn Getz, Irene Hetlevik 2016:

Liv Mjelde

the groundwork for an understanding of how human beings learn through activity and cooperation. As Vygotsky said, inspired by Francis Bacon: **Neither the mind nor the hand can do much alone. The deed is brought to fruition through activity and cooperation.**

New knowledge and new practices are evolving. New concepts are developing both in social and natural sciences. In pedagogy, one of the new words is that all changes in schools should be based on **scientific evidence**, so called “**research-based changes**”, thus **educational changes should be followed up by research**. New concepts are **vocational pedagogy** and **vocational didactics**, concepts I have been working with. The concept **pedagogy of professions** has developed in relation to these contradictions in higher education. Master/apprenticeship traditions, mentoring and student cooperation are pointing toward a promising education of the future.

To sum up: The remoteness of the academic world from the world of work in education cries out for new solutions. The traditional contradictions between work of hand and work of mind, between intellectual and manual labour both in general and inside different professions face colossal challenges. The technological revolution based on ICT is changing labour processes and restructuring production at an accelerating speed creating constantly new needs for skills in all trades and professions. Old professions die and new ones are created. I would like to end with a citation from research colleagues in Trondheim: **Investigatore mementote vos generis humanis veritatis speciem effingere. Researchers! You are creating mankind’s definition of reality.**

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