

Prof. James Trevelyan

Summary of Address:

Major conceptual advances in understanding how people learn have started to influence engineering education in many countries. At the same time, research on engineering practice is forcing engineers and educators to reassess long held assumptions that have dictated the education agenda for many decades. This research also helps to explain why engineering seems to be much more successful in some settings than others, greatly influencing living standards for ordinary people .

The world is facing unprecedented engineering challenges in the near future with the need to significantly reduce per capita consumption of non-renewable resources and, at the same time, significantly reduce undesirable human influences on the earth's environment. Research shows that engineers could be much more effective in solving these issues by recognizing the need to build on advances in the social sciences, learning sciences and psychology to greatly improve technical collaboration. The research shows that there are very large rewards for engineers who can master technical collaboration.

In this presentation Prof .Trevelyan will outline recent advances in engineering education and the understanding of engineering practice and discuss some of the implications for engineers and their educators. He will also explain why these issues will be extremely influential in the future evolution of human civilization.

Brief CV:

Professor James Trevelyan teaches in the Mechanical and Chemical Engineering School at The University of Western Australia, is a Fellow of Engineers Australia, and practices as a mechanical and mechatronics engineer developing new air conditioning technology .

His main area of research is on engineering practice and he has recently published a major book: "The Making of an Expert Engineer." He teaches mechanical design, sustainability, engineering practice and project management.

He is well known internationally for pioneering research that resulted in sheep shearing robots (1975-1993).He and his students produced the first industrial robot that could be remotely operated via the internet in 1994. He was presented with the 1993 Engelberger Science and Technology Award in Tokyo in recognition of his work ,and has twice been presented with the Japan Industrial Robot Association award for best papers at ISIR conferences. These are the leading international awards for robotics research. He has also received university, national and international awards for his teaching and papers on engineering education.

From 1996 till 2002 he researched landmine clearance methods and his web site is an internationally respected reference point for information on landmines. He was awarded with honorary membership of the Society of Counter Ordnance Technology in 2002 for his efforts, and was also elected a Fellow of the Institution of Engineers Australia .

Professor Trevelyan's web page is <http://www.mech.uwa.edu.au/jpt/> providing further information on his research and teaching.