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The Visual in Engineering: Old Schemes and New Dilemmas

In the 21th century, people of the modern era find themselves in a new work environment. The ancient “ingenious homines”, of whose world the present-day engineer's visual environment is an impressive development, illustrates the social and economic networks surrounding individuals are more complicated than ever. Learning theory analysis typically examines the characteristics of visual learning, where new learning methods and techniques meet, as a result of current changes, with special regard to advancements in ICT. In such an increasingly rich learning space, learning how to apply new visual learning methods consciously and efficiently may prove to be an investment with a good return in the long run. During the period of the millennium the Mind’s Eye tenet (recall Eugene Ferguson’s 1991 book *Engineering and the Mind’s Eye*) was of importance as a classical opinion which had significant effects on engineering education. Today, however, even the synthesizing efforts of the Visual Learning Labs (Nottingham, Budapest) illustrate the new situation in a practical and in a theoretical way. The presentation outlines dilemmas concerning the practice of the visual from the viewpoint of engineering education based on the results of a course content digitalization project (the development of 27 electronic course contents) realized at BME in 2012–13. Although the old schemes are present in the practice of engineering education, a new process, that of transforming the role and practice of visual learning is emerging, and the description of this process can clearly be helped by analysing the present dilemmas.

András BENEDEK, Professor and Head, Department of Technical Education, Budapest University of Technology and Economics, has published some 150 papers to date in connection with human resource development issues, among them the essays “New Vistas of Learning in the Mobile Age”, in Kristóf Nyíri (ed.), *Mobile Understanding: The Epistemology of Ubiquitous Communication*, Vienna: Passagen Verlag, 2006, and “Mobile Learning: New Horizons and Unstable Summits”, in Kristóf Nyíri (ed.), *Engagement and Exposure: Mobile Communication and the Ethics of Social Networking*, Vienna: Passagen Verlag, 2009. From 1976 to 1979 he studied systems analysis on a scholarship and acquired a PhD at the Academy of Sciences in Moscow. During the 1980s he was a scientific advisor at the Hungarian Academy of Sciences. He was the Director of Vocational Training (from 1984 to 1989), then Director General (from 1989 to 1990) at the National Pedagogical Institute. As its first Director General in 1990, he established the National Institute for Vocational Education. He was involved in numerous UNESCO and ILO projects, and continues to participate in the preparation of various World Bank and Phare projects in the area of human resource development. 1991–2006 he held the positions of deputy and permanent state secretary in different ministries. In 2004 he acquired a DSc at the Hungarian Academy of Sciences. E-mail: benedek.a@eik.bme.hu.