Contribution of the FIS[1]-Learning Portal for Competency-Based Education
- From Theory to Practice

Kerstin Voß
*GIS-Station * Abteilung Geographie * PH Heidelberg*

*Andreas Rienow * Roland Goetzke * Henryk Hodam*
Arbeitsgruppe Fernerkundung, Geographisches Institut, Rheinische Friedrich-Wilhelms-Universität Bonn

The focus of competency-based education is the acquisition of competencies and skills. The constructivist approach is based on the premise that learning is not a result of teaching, but of the mental construction of the learner. Consequently, the approach interprets learning as an active process. Learning leads to an adaptation of existing patterns of perception, thinking, and action to new information, thereby creating new findings. To meet these requirements appropriate learning environments are needed. They have to be characterized by intuitive user guidance and fit the target groups' needs in terms of an appropriate range of functions, which facilitate an intensive, active and self-directed learning.

Working with remote sensing data in school lessons enables new and modern ways of learning. Satellite data can be used efficiently in class for all present relevant phenomena and processes listed in the educational standard for the subject geography (e.g. earthquakes, floods, disparities and resource conflicts). The use of satellite images in class offers in addition to the strengthening of natural science education and working on present questions further advantages, e.g. a high degree at descriptiveness, a motivating effect of the imagery, as well as ways for problem-oriented working, the strengthening of spatial orientation skills, method competence, and evaluating and practice skills.

To contribute to competency-based education the FIS learning portal is designed according to the general criteria for multi-media learning environments of BLOH & LEHMANN (2002)[2], MESCHENMOSER (2002)[3] and PÄTZOLD (2007)[4]. The learning portal allows teacher and students a simple introduction to the fascinating field of remote sensing. The goal is to bring the learner into an active role and to promote intensive engagement with the learning content. According to KERRES (2006)[5], multi-media preparation of learning material supports cognitive learning processes. Equivalently, all different learning materials are multi-medially prepared, thus the contents are provided through different means of coding (texts, images, animations, films, figures etc.). The digital learning modules implemented on the platform allow a high degree of interaction. Moreover, specific tools for research, analysis, and exchange are integrated, thus independent working and discovery-based learning is encouraged in terms of a practice-oriented approach. Furthermore, the exercises provided in the learning material are an orientation for the students. Through self-audits and feedback the metacognition will be integrated in the learning process.

The contribution is attended to the development of the FIS-learning portal, starting from theoretical consideration to practical implementation.

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[1] Fernerkundung in Schulen – Remote Sensing for Schools

[2] Bloh, E. & Lehmann, B. (2002), Online Pädagogik – der dritte Weg? Präliminarien zur neuen Domäne der Online-Lehr-Lernnetzwerke (OLN)", Lehmann, B. (eds.) Online-Pädagogik, Schneider Verlag, Hohengehren, 11-128.

[3] Meschenmoser, H. (2002), Lernen mit Multimedia und Internet, Schneider Verlag, Hohengehren.

[4] Pätzold, H. (2007), E-Learning 3-D – welche Potentiale haben virtuelle 3-D-Umgebungen für das Lernen mit neuen Medien, Medien Pädagogik – Zeitschrift für Theorie und Praxis der Medienbildung, http://www.medienpaed.com/2007/paetzold0709.pdf .

[5] Kerres, M. (2006), Potenziale von Web 2.0 nutzen, Hohenstein, A. & Wilbers, K. (eds.), Handbuch E-Learning. Dt. Wirtschaftsdienst, München.