



**Geodetic Education and Research Management
– a basic component for developing a nation's
ecology, economy and society**

Hans-Peter Bähr
Universität Karlsruhe
Institut für Photogrammetrie und Fernerkundung
Deutsche Geodätische Kommission





Publications in relation with curriculum development (selection)

- Berutti, A. J., Bähr, H.-P., Lopes de Santos, H. N.: Digital Image Processing at the Curso de Pós-Graduação em Ciências Geodésicas” of the Federal University in Curitiba/Brazil. Internationale Gesellschaft für Photogrammetrie, Kommission IV, Rio de Janeiro 1984
- Bähr, H.-P.: German PhD Research in Photogrammetry, Remote Sensing and GIS and its Contribution to Education and Scientific Progress. Invited paper International Society for Photogrammetry and Remote Sensing, Technical Commission VI, Porto Alegre 2001.
- Bähr, H.-P. et al.: Joint Educational Geomatic Programmes in Brazil and Germany since 1981 – Strategies for Sustainable Development. International Society for Photogrammetry and Remote Sensing. Commission VI, Sao José dos Campos, 2002
- Bischoff, F. and H.-P. Bähr: Didactic and Methodological Challenges in New Media Based Teaching and Learning for GIS. International Society for Photogrammetry and Remote Sensing. Commission VI, Sao José dos Campos, 2002
- Krueger, C., J. Centeno, H.-P. Bähr, B. Heck: GEOMACK-I: Uma experiência positiva no intercâmbio acadêmico internacional. SBC Belo Horizonte, 2003
- Bähr, H.-P.: eLearning – The Possible and the Impossible. In: Fritsch, D.: Photogrammetric Week '05 S. 311 – 320. Wichmann Verlag Heidelberg, 2005
- Alkis, A., Alkis, Z., Bähr, H.-P., Loch, C.: Geodetic Support from Universities for Public Administration Creates Mutual Benefit: Models and Experiences from Brasil, Germany and Turkey. Joint Turkish-German Geodetic Days, Berlin 2006
- Bähr, H.-P., Vogt, J., Alixandrini, M.: Modelos Alternativas de Cooperacao entre Universidades, Empresas Privadas e Administracao Pública: o Exemplo da Universidade de Karlsruhe. 7. Congresso de Cadastro Técnico Multifinalitário e Gestao Territorial (COBRAC), Florianópolis, 2006



1. Models

In many developing countries universities are, compared to Germany, much more focused on education than on research. However, top education requires interaction with top research. This “Humboldt Principle” from the early 19th century is the secret behind the success of German academic education *and* research in the past.





Today, education is, without any doubt, politically defined. E.g., within the last decade, top-topics in research shifted from environmental themes to natural risks, climate change and (renewable) energies* – all of them have been politically transported.

This is reflected, directly or indirectly, by the educational programmes

* “basic food production” from now on?





“Networking” is a more recent concept which may be applied to courses and to national and international cooperation. Function and number of nodes involved in a network have to be carefully designed.

To give examples:

From bilateral to multilateral: $A [1... n] : B[1... m]$

EU Alfa III programme requires cooperation from at least 4 countries in South America (A) and in 2 european countries (B), respectively
The German Geodetic Commission integrates the complete geodetic spectrum

Project (research...) orientation leads to sustainable structures, integrating young scientists (tutors, PhD candidates...) from academics
(+ companies and public administration??)





Elements of globalisation

Due to ubiquitous information technology (UIT), global access to information is available to many (compared to the situation 20 years ago).

Developing countries should take profit out of this situation, if political conditions allow.

On the other hand, the use of the internet does not necessarily simplify science.





Language represents the main medium for education and research. English turned out to be the international *lingua franca*, however, if possible, courses should be run in the student's native language.





Brain drain: The concept has a negative touch, although international exchange of lecturers and scientists has from the beginning been a “trade mark” of academics. Nevertheless, today we observe a “global battle for the best brains”.

This confirms the thesis, that human resources and science guide a nation’s future.





The role of programmes

There are many donor agencies which support education and research, including international cooperation. Mobility fellowships are given by EU-grants, widely accepted by European students.

Because of the positive experience with that type of support, similar procedures have been set up for interchange with non-European countries like the UNIBRAL and the PROBRAL-programmes (Germany/Brazil) and the EU driven Alfa, a TEMPUS derivate for Latin America





4. Concluding Remarks

The particularities of the German Geodetic education:

“understanding the rules” is considered more important than
“learning facts by heart”

Project- (problem-) oriented lecturing including campaigns
and teamwork is offered from the beginning

Excellency is in the advanced (graduate) courses, where
students are invited to work in top research projects





Thank you for your attention



