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TEACHING LANDSCAPE PLANNING – LANDSCAPE PERCEPTION AND ANALYSIS

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Abstract: According to the Bologna Accord in 2006 the study courses for architecture, urban planning and landscape planning at Kassel university were reformed to a bachelor and master education programme. New courses – so called "modules" were found. One of them "Wahrnehmung und Analyse von Räumen" – "landscape perception and analysis" – is an interdisciplinary course teaching and comparing three different perspectives – those of ecology, social science and landscape planning – on landscape. To manage a high number of students the e-learning platform "Moodle" is used. Also giving an introduction into GIS is a major part of the course. This article – after "landscape perception and analysis" started four years ago – gives an overview of the recent and future development of the course from a teachers perspective.

Keywords: Universitarian teaching, GIS, e-learning, bologna process

// WAHRNEHMUNG UND ANALYSE VON RÄUMEN – EIN INTERDISZIPLINÄRES LEHRMODUL IN DER UNIVERSITÄREN LANDSCHAFTSPLANUNGSAUSBILDUNG

// Zusammenfassung: Im Zuge des Bolognaprozesses wurde 2006 der Studiengang Landschaftsplanung an der Universität Kassel auf das Bachelor- und Mastersystem umgestellt. Eines der neuen „Lehrmodule" ist „Wahrnehmung und Analyse von Räumen", das interdisziplinär angelegt ist, und den Studierenden eine Einführung in die Erfassung von Landschaften gibt. Drei unterschiedliche Perspektiven auf Landschaft – ökologisch, sozialwissenschaftlich und landschaftsplanerisch – werden gelehrt und gegenübergestellt. Um die große Zahl der Studierenden zu betreuen, wird die E-Learning-Plattform „Moodle" eingesetzt. Auch die Heranführung an Geographische Informationssysteme ist ein wesentlicher Teil der Ausbildung. Dieser Beitrag stellt nach nun vier Jahren „Wahrnehmung und Analyse von Räumen" die Entwicklung des Moduls dar, und zeigt die wichtigsten Erkenntnisse aus der Sicht der Lehrenden.

Schlüsselwörter: Universitäre Lehre, GIS, E-Learning, Bolognaprozess

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1 INTRODUCTION

Landscape architecture education programmes at Kassel University were reformed in 2006 to comply with the Bologna Accord. In this process new educational courses were developed, and these were combined to form clusters called 'Modules'. The first cohort of Bachelor students has graduated in 2010 and it is time to analyse and evaluate the new system. As an example this paper focuses on a module that, at first glance, appears to be working well. The example is a set of first year (second semester) courses that are integrated in a module called 'Landscape Perception and Analysis'. The aims of these course are for students to learn how to analyse landscapes by perceiving them from three different perspectives, and also to apply, as their analytical tool, a geographic information system (GIS).

2 OBJECTIVES OF THE MODULE 'LANDSCAPE PERCEPTION AND ANALYSIS'

2.1 AN INTERDISCIPLINARY LEARNING MODULE FOR LANDSCAPE AND URBAN PLANNERS

At Kassel University the interdisciplinary education in the fields of architecture, urban planning and landscape architecture and planning has a long tradition. It started when the School of Architecture, Urban and Landscape Planning was established in 1971, and earlier initiatives for integrated didactic approaches may be traced back as far as 1948/49 when the first 'Master Class of Landscape Culture' was established at the Kassel Art Academy. Today there still is a strong interdisciplinary philosophy at Kassel University that integrated education is based on. This thinking is reflected in the 2006 Reform as even some of the basic first year 'integrated modules' are obligatory for all students, including students of architecture, planning and landscape architecture. The module described in this text is offered to students of landscape architecture and urban planning. The module integrates three courses and is taught by three departments: Ecological Site & Vegetation Studies, Landscape & Land Use Planning, and Urban & Regional Sociology. Therefore it can be regarded as a "core-competences" module (Bruns et al. 2010).

2.2 OBJECTIVES OF THE FACULTIES TEACHING 'LANDSCAPE PERCEPTION AND ANALYSIS'

Every one of the three departments involved in this module is, in some way, specialized in the collection and analysis of landscape related data. Each represents a different view on landscape.

Ecological Site & Vegetation Studies traditionally focus on ecological aspects of the landscape. Objective of their course contribution are to gain an overview on biotope-types and apply traditional ecological ways to describe and analyse the landscape: this is the landscape perceived from the ecologists' point of view.

Urban & Regional Sociology, on the other hand, holds a sociologist's position. Their contribution to the module is focused on people and human behaviour. Observing people in the landscape and describing their activity also offers an opportunity to describe the kind of space people are using. Most of all this course contribution shows what space people prefer and to try and explain why they might prefer specific locations over others.

Landscape & Land Use Planning assists students in learning to understand and analyse landscapes according to their visual appearance and atmosphere. Differences between landscape type and character are emphasized, and techniques of understanding landscape history are presented.

All together, some very different methods and techniques of landscape analysis are taught:

- Biotope and land use classification, using a typological approach;
- Landscape characterisation and landscape atmosphere;
- Observation of space and people behaviour.

On the one hand, all of these approaches are merged, partly for didactic reasons of integrated learning, partly by the needs of the GI-System. GIS is a fourth component of this module. A GIS specialist takes the responsibility for teaching this component (as suggested by Watson 2010). Didactically, the most important aim is to combine results produced from applying all of the different methods and techniques in a final synopsis. Students are asked to answer the question how all methods they have learned may be used in concert, and which specific questions may be answered by which methods individually? And, finally, how do these methods complement each other?

2.3 DIDACTIC APPROACH

The learning aims of this module are to teach different approaches of landscape analysis, using a GIS and giving an overview of the purpose and properties of each of the different methods. Usually a high number of students (about 200) enrol into this module every year. Didactic approaches must be selected that accommodate the need for many students to achieve their learning goals. 'Learning by doing' has been shown to be the most effective way of learning, particularly in spatial and landscape planning. Also it has turned out that working in groups (collaborative learning) assures best learning effects (e. g. Yamarik 2007, Hwang 2008). Field work techniques were selected assuming they would provide the best learning effects also in these courses. A field based landscape analysis can only be a success if it is well prepared. The students must be prepared, as well as the chronological and spatial distribution of students and teachers in the field (Chapter 3).

Besides the methods used in GIS also need to be considered. GIS requirements were a permanent component of the semester cycle, not only due to the complexity, but also because it affected all other parts of the course.

3 ORGANISATION AND PROGRAMME

3.1 SEMESTER PROGRAMME

The semester consists of 13 weeks of active teaching time, and several weeks of self study. The programme and thematic organisation for the 'Landscape Perception and Analysis' module is shown in Table 1. The programme is separated into three thematic blocks that relate to what the three participating departments are offering. The programme also begins with a comprehensive introduction and it ends with a closing event. Parallel GIS courses are held using 'Moodle' (Chapter 3.2). GIS was also a major topic of discussion during many of the meetings.

3.2 LOGISTICS AND CONTENTS

Meetings were normally held in the auditorium on Thursdays' evening, while field visits were arranged on Wednesdays during the morning. As students worked in groups of six they had to start the field trips on their own and then meet instructors at a certain time and place during their ongoing work. The city of Kassel was subdivided into planning areas of 500 × 500 meters (Figure 1). Every quadrant was worked on by five groups. So it was possible to compare the outputs.

4 TEACHING METHODS

According to the decisions on didactic approaches (Chapter 2.3) a number of different teaching methods are integrated to run the courses of this module. Two major challenges are:

- A high number of students (ca. 200).
- A complex topic and a large number of different views on landscape.

4.1 LECTURES AND LEARNING PAPERS

Lectures are part of the teaching programme. Lectures are used to give introductions to the theoretical basis and to outline analytical methods and techniques to

Week	Day	Content	
15	Wed.	Introduction	Introduction to the module and its courses
	Thur.	Landscape planning	Theory I: land use and land use types
16	Wed.		Field visit I: land use and land use types
	Thur.		Theory II: landscape character, atmosphere, cultural landscapes elements
17	Wed.		Field visit II: landscape character, atmosphere, cultural landscapes elements
	Thur.		Theory III: Landscape history, mapping changes in time
18	Wed.	General Excursion and Field trip week	
	Thur.		
19	Wed.		Field visit III: Landscape change mapping
	Thur.	Holiday	
20	Wed.		Presentation No. 1: land use, character and atmosphere
	Thur.	Landscape ecology	Theory I:
21	Wed.		Field visit I:
	Thur.		Theory II:
23	Wed.		Field visit II:
	Thur.	Holiday	
24	Wed.		Presentation No. 2: landscape ecology
	Thur.	GIS	Consolidation of part No. 1 and No. 2
25	Wed.	Sociology	Theory I & II
	Thur.		Field visit preparation
26	Wed.		Field visit: Observation
	Thur.		Presentation No. 3 Part 1
27	Wed.		Presentation No. 3 Part 2
	Thur.		Formalities, requirements on the written report
28	Wed.		Comprehensive perspective, lessons learned
	Thur.		Preparation of written report (Group work)

Table 1: Thematic organisation of the semester programme summer 2010

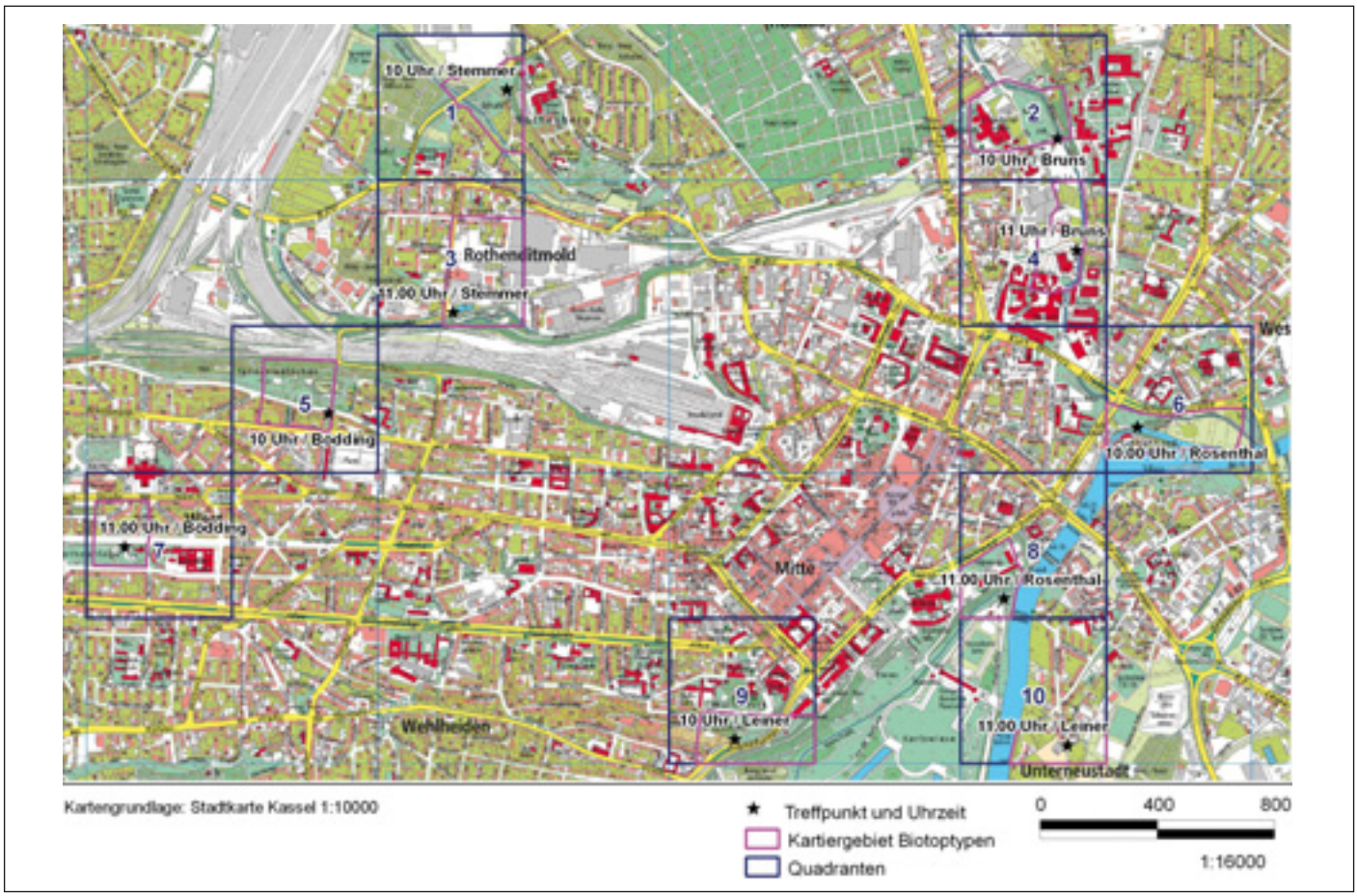

Figure 1: Map of Kassel, showing quadrants, meeting points and meeting times

prepare for the next field trip. Lectures also include small exercises that are designed to help students in transferring theoretical knowledge into practical applications of methods, and to build and improve practical skills. Homework assignments are given to the students, in most cases the purpose is to prepare for field trips (Chapter 4.2 Field visits). Lecture sessions are usually held Thursday evenings. About one and a half hour of lecture appears to be the maximum in an evening according to the students' ability to concentrate on a single topic.

4.2 FIELD VISITS

Field trips and field visits are frequently used learning methods. This module included five field visits (Table 1). For their perception and analysis students are required to refer to theoretical knowledge taught during lectures and apply methods and techniques prepared during lecture exercises. Field work is done by groups, and every group must work mostly independently. The need to work independently is one reason why good preparations are important. To support students during their work in the field, on Wednesday morning between 10:00-13:30, instructors meet with every group to help them with problems, to give advice, and to discuss the output produced so far.

4.3 HOMEWORK ASSIGNMENTS

Frequently, homework assignments are given to students at the end of lectures, and also at the end of field visits. Two types of homework are:

- Preparation for field visits;
- Preparation of presentations after field visit (output).

Preparations for field visits include the assembling of maps as well as readings of theoretical and practical literature. Maps are arranged with help of geo-data that are provided on 'Moodle'. Texts were also available on this learning management system.

Preparing landscape analysis outputs after field visits mainly includes the digitalization and layout of hand drawn maps, scanning of sketches, arranging photographs and completing questionnaires with external information.

4.4 PRESENTATIONS

Presenting one's work is considered important in landscape architecture and in planning. As a key competence presenting skills are repeatedly trained. Students are asked to present results at the end of every thematic block, and special presentation events are arranged for this purpose (Table 1). Due to the large number of students it is necessary to select some groups to present their work and to use presentation meetings mainly to discuss standards and quality that is expected from landscape analysis work.

The presentation meetings are prepared, by the instructors, by reviewing the output of the ongoing work. A selection is made of those maps and sketches that would be most suitable to illustrate certain aspects of the assignments. Presentations are given spontaneously by the groups whose work are selected to serve as examples. To minimize frustration effects students were not asked to prepare for presentations ahead of time, but for all students to be aware that they could be asked to comment on their work at any given time.

5 EXCURSUS: GIS AND 'MOODLE'

Landscape architecture and planning students who graduate with an emphasis on landscape planning or spatial planning are expected to have gained substantiated knowledge and expertise in GIS. However, universities appear to place less value on GIS related education as professionals in practice might expect them to. For students to prepare for future business requirements is one of the main challenges that institutes of higher education are facing (Winkelmann 2005). At Kassel University the decision was made to include GIS-courses from the start, beginning in the first semester in first year, and to continue in the second semester including GIS as part of the module 'Landscape Perception and Analysis'. During this course students get a first chance to apply knowledge gained in the first semester and place it in a professional context. The major aims of the GIS-training in the course are:

- Understanding the overall concept of desktop GIS;
- Understanding properties, analysis functions, visualisation and presentation of geo-data;
- Identifying errors and manipulations in geo-data;
- Ability to design readable maps.

The students GIS-Infrastructure is established during the first semester GIS course. In this course the open source Software 'Quantum GIS' (www.qgis.org) is used and students are made familiar with working in 'Moodle'. Therefore, during the second semester, it may be assumed that a basic knowledge of GIS is available and 'Moodle' is well known. Students are used to receive distributions of PDF tutorials, scripts and geo-data. They are also used to receive mentoring using the learning management system. 'Moodle' is a well known learning management system that is used by many universities and other institutions of higher education. In this course the system was employed for central organisational and teaching purposes:

- Grouping of students and assigning of planning area (quadrants);
- Providing materials (e. g. maps, instructions, scientific texts);
- Forum for discussions, especially regarding GIS;
- Handing in of assignments and presentations.

Concerning GIS most of the problems occur when students are asked to create presentation maps. Obviously it is not hard to understand how a GIS works and how to use the technique; but choosing an easy to read layout appears to be much harder. Particularly the choice of colours for certain types of land use or biotope often appear to be difficult, and representation and legend layout require lengthy discussions.

Many but not all issues can be solved using 'Moodle' forums. And in many lectures GIS issues are also integrated (Chapter 4.1)

Nevertheless, the learning management system (LMS) 'Moodle' as well as the individual availability of GIS software are important preconditions to make a success out of teaching this complex module.

6 OUTPUT AND OUTCOMES

The semester output is a booklet. Each student group designs and produces a brochure booklet that contains results from all exercises and assignments. The deadline for handing in this booklet is a few weeks after lectures end. This allows for enough time to mainly design the booklet. Individual assignments such as maps had to be ready after every mapping exercise. This procedure assures that students continue working on assignments and exercises throughout the semester. Excerpts from an example booklet are included in Figure 2 to 4.

As may be expected, outputs qualities are quite diverse. Some products are excellent, while others are hardly able to meet minimum standards. Good working results clearly indicate that learning requirements are not being set at a too high level, however the wide range of grades earned also shows that all of the exercises also help identifying differences in group capabilities.

Some comments students made on the design of the course programmes are noteworthy. For example, students remarked that, when faced with problems in trying to adjust their group perceptions on landscape to what they remember was said during the lectures, it would have been helpful to receive more intensive tutoring during field visits. Other students comment on problems they encountered while using the GIS software, especially regarding the stability of it running smoothly. Unfortunately, it is difficult to evaluate such issues when using e-learning based methods.

Figure 2: Atmosphere Sketch of a working class street in Kassel-Nordstadt (by Viola Bornscheuer, Carolin Jakschik, Katja Krüger, Mareike Wingenfeld)

Figure 3: Sketch of a historic landscape element in Kassel-Unterneustadt (by Chanda Winter)

7 CONCLUSIONS

The newly created 'module' serves to illustrate how to effectively organize a course designed to learn and understand basics of landscape assessment, and how to combine these not only with methods used in landscape planning, ecological and perception and cognitive methods, but also with modern digital techniques of data processing and communication.

This 'module' is now one of the best organized ones of the School, and it is working quite well. Still there is room for improvement. Students should be encouraged more strongly to work independently and to rely more on the theoretical knowledge and on the methods presented to them in lectures. Additionally, while the 'Moodle' system presents a huge organisational benefit, communications and coordination could be improved even more. It can be observed that the strength gained from personal exchanges between teachers and students is important and, due to a lack of face-to-face communication, no any e-learning system is able to be a good substitute.

Nevertheless the approach presented here is capable to ensure that learning goals are met and that participants are enjoying to produce good results.

Figure 4: Land use map of Kassel Rothenberg/Rothenditmold (by Monika Forys, Johannes Rahe, Leif Polex)

References

Bruns, D.; Ortacesme, V.; Stiles, R.; de Vries, J.; Holden, R.; Jorgensen, K. (2010): Tuning Landscape Architecture Education in Europe. ECLAS – LE:NOTRE. http://www.lenotre.org.

Hwang, N.-C. R.; Lui, G. (2008): Cooperative learning in a passive learning environment. A replication and extension. In: Issues in Accounting Education, 23 (1), pp. 67–75.

Watson, D. (2010): Are Landscape Programmes Meeting the Challenge of Educating the Second Generation of Digital Landscape Architects. In: Buhmann, E. et al. (Eds.): Peer Reviewed Proceedings of Digital Landscape Architecture 2010 at Anhalt University of Applied Sciences. Wichmann, Berlin/Offenbach, pp. 491–500.

Winkelmann, H. P. (2005): Hochschule und nachhaltige Entwicklung. In: Michelsen, G.; Godemann, J. (Hrsg.): Handbuch Nachhaltigkeitskommunikation. Grundlagen und Praxis. Oekom, München, pp. 809–818.

Yamarik, S. (2007): Does cooperative learning improve student learning outcomes? In: The Journal of Economic Education, 38 (3), pp. 259–277.