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The Bavarian Virtual University (virtuelle hochschule bayern - vhb) – Structural Configuration and Key Success Factors

The vhb in the German and European context

In the Federal Republic of Germany, the whole range of education from primary schools to the universities lies within the exclusive jurisdiction of the 16 states ("Länder"). This explains why there is no federal "German Virtual University".

The Free State of Bavaria is the second largest of the 16 German states with an area of 70,000 square kilometres and a population of 12.5 million. Although the network of institutions of higher education is quite dense and the demand for distance and online education is not as high as e.g. in the United States, Mexico, Canada or in the Nordic Countries, the Bavarian Virtual University (vhb) has recently been identified as one of Europe's mega providers of higher education online in an ongoing research project financed by the European Union¹. This proves the relevance and the success of the vhb's overall concept which will be outlined in the present paper.

Key facts about the vhb

The vhb was set up in May 2000 by the Bavarian Ministry of Higher Education ("Ministry of Science, Research and the Arts") in cooperation with all nine state universities and all 17 state universities of applied sciences in Bavaria. A further five universities in Bavaria outside the jurisdiction of the Bavarian Ministry of Higher Education have also become members. The function of the vhb is regulated by a special ordinance of the Free State of Bavaria.²

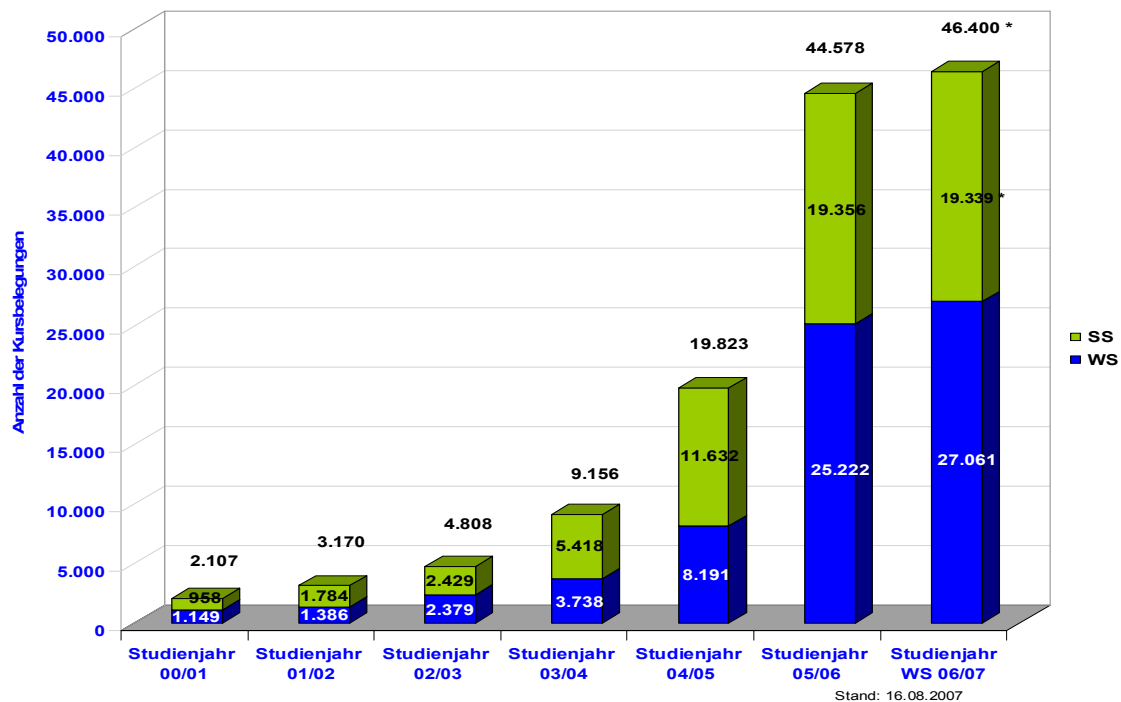
The aim of the vhb is to complement the programmes of the traditional universities, not to replace them. With the support of the vhb, students can earn credit points in individual courses, but they obtain their degrees at their home universities, as the vhb does not offer complete courses of study. (Neither should the activities of the vhb be confused with distance education offered by some of the member universities. These courses of study generally include face-to-face elements and serve for the most part the further education needs of people in employment.)

The vhb supports its member universities in providing high quality education for growing numbers of students in times when state funding does not grow proportionally. The vhb courses help the students to organise their individual studies in a more flexible way, which is especially valuable for non-traditional students. The vhb courses also help students to complete practical courses and trainings as well as studies abroad without extending the duration of their studies.

In the academic year 2006 / 2007, 180 different courses were available. Most courses are offered each term ("semester"), some courses are offered once a year. In both terms of the academic year 2006 / 2007 combined, 340 courses in total were conducted. In these 340 courses, there were more than 46,000 enrolments by more than 15,000 individual students. The following figure shows the growth of student enrolment over the past years:

¹ See http://www.nettskolen.com/in_english/megatrends/the_project.html

² http://www.VHB.org/dokumente/downloads/verordnung_VHB_2005.pdf



The vhb employs neither academic staff nor tutors. Teaching is offered by professors of member universities who work within the vhb either as part of their workload or in addition to it. For day-to-day course work, professors usually employ tutors. The remuneration of the tutors is supported by the vhb.

Until now, the vhb has been financed almost exclusively from state funds; member universities have contributed indirectly through their infrastructure. Starting from summer 2007, member universities contribute financially in relation to the number of students they have. Students of the vhb's member universities do not have to pay any fees for the vhb's courses. Students from other universities and persons interested in lifelong learning can also be admitted on payment of a fee.

The vhb focuses on member universities and their students as its "market" for online education. At the moment, the member universities have about 250,000 students. This figure is expected to rise to about 320,000 by 2012.¹ This increase in times of strained state budgets necessitates the restructuring of university teaching. The need for change is intensified by the Europe-wide Bologna Process with its focus on modularisation and with the multiplication of the number of examinations the new degrees require.

In addition, within the framework of the new Bavarian University Law² and with the help of global budgeting, the universities acquire more room for manoeuvre. In this situation, various combinations of web-based and face-to-face teaching and learning ("blended learning") are part of the solution to the current challenges. When we speak about "blended learning", we should be aware of the fact that this concept can be interpreted in different ways. Within the vhb, blended learning on the macro level plays a key role.

¹ cf. Wissenschaftsland Bayern 2020

² http://www.stmwfk.bayern.de/downloads/hs_hochschulgesetz_hschg_gvbl102006.pdf

Macro-level blended learning as a key success factor

What do we understand by “blended learning on the macro-level”?

After the collapse of the initial “e-learning” euphoria, “blended learning” became the common concept for the integration of computer- and web-aided elements into teaching and learning. By “blended learning”, many experts mean the combination of face-to-face teaching and web-based teaching *within a single course*. We call this type of blended learning “*micro-level blended learning*”. While micro-level blended learning has many pedagogical benefits, it does not necessarily make full use of the economic effects of e-learning. Teachers who use single e-learning elements in their courses do not necessarily gain additional teaching-time, and micro-level blended learning is hardly a remedy e.g. against the shortage of lecture rooms many universities face. For the students, this type of blended learning offers only limited flexibility. In many cases, especially when the web-based elements concerned are exploited only by one professor at one university, micro-level blended learning seems to offer higher quality or added value at additional costs.

By contrast, the vhb concentrates on *macro-level* blended learning with the purpose to offer high-quality teaching at lower costs than face-to-face teaching.

By macro-level blended learning we understand the integration of single online courses into courses of study or curricula which otherwise (and for the most part) consist of “traditional” face-to-face courses. Thus, students can earn some credits in online-courses, but not the complete degree. This combination of face-to-face courses with courses that are delivered completely online (possibly with the final examination face-to-face) allows the students much more flexibility than micro-level blended learning. At the same time the students enjoy all the benefits of a traditional face-to-face university. Therefore, macro-level blended learning minimises the dangers of social isolation often associated with e-learning.

Moreover, if online courses are developed once at one university, but exploited at several universities, the comparative cost-effectiveness is obvious. Universities can “import” courses from other universities, including even the support of their students by tutors of the “exporting” university. By contrast to micro-level blended learning, this kind of import also helps universities to compensate a possible lack of teachers as well as eventual room shortages.

Macro-level blended learning combines the social and pedagogical benefits of face-to-face teaching and learning with the economic effects of online teaching and learning, and it is therefore one of the responses to the challenge of growing student numbers in times of strained public budgets. The cost effectiveness of macro-level blended learning, in turn, is the major motivation for the Bavarian Ministry of Higher Education to finance the necessary structures and the development of new content.

However, it should be pointed out that neither Ministry nor vhb see macro-level blended learning as a means to reduce the overall cost of education. On the contrary, investment in education will have to be raised considerably, and face-to-face teaching and learning will continue to be dominant in higher education. Macro-level blended learning is a means to limit the *additional* costs of better education for more students.

To achieve the goal of cost-effectiveness, courses must be developed to the demand of the universities. To develop new courses exclusively according to the pedagogical and other preferences of individual teachers would not ensure the amount of student enrolment necessary for a noticeable contribution to the total teaching load of the Bavarian universities. This, in turn, would seriously challenge the use of the vhb for both the state and its member universities, that is, for the institutions on which the funding of the vhb depends.

Technical issues

In the vhb with its more than 30 member universities, a variety of learning management systems (LMS) is in use. This variety is a consequence of the variety of the subjects taught as much as of the history of the vhb, which in the year 2000 started with 36 courses prepared for different subjects by different universities. No central server is used; all courses are on servers of member universities, and they are administered by the responsible persons, i.e. by professors of the member universities or by members of their staff.

It has been argued that this might not be the most effective solution, but as far as can be judged from the students' evaluation, this plurality of LMS and platforms does not constitute a problem for the students. Critical remarks related to specific features of specific systems (which were then improved) do not refer to the fact that a variety of systems is used. Besides, the transfer of the existing courses to a single system would not be economically sound. The gradual introduction of a central LMS has been discussed by the member universities, but the vast majority is not in favour of such a solution.

While unification of LMS does not seem to be an urgent issue, the establishment of an authorisation and authentication infrastructure (AAI) is on the agenda. As a first step, a way of data exchange has been established with all important member universities that makes online-registration with the vhb possible. Data on participation in examinations and on their results are a sensitive issue. These data are exchanged directly between the examining university and the students, and between the students and their home universities, not via the vhb.

Courses

In the "Wintersemester" 2007/08 (September 2007 to February 2008), the vhb will offer courses in the following fields of study (the number of courses is given in brackets):

- Business Sciences (24)
- Computer Science (14)
- Engineering (24)
- Health (26)
- Key Qualifications and Languages (26)
- Law (20)
- Social Work (11)
- Teacher Training (16)

Sometimes the question of the "onlineability" of different subjects is raised. Within the vhb, successful online courses have been developed for various subjects and with different pedagogical concepts. Of course, some subjects appear to be especially suitable for online treatment (as opposed to traditional paper-based distance education) because of the additional *pedagogical* benefits which electronic communication and multimedia elements provide. On the other hand, the *economical* benefits of offering courses online instead of paper-based or face-to-face solutions can be just as significant and important. The decision to develop and offer an online course should be based on pedagogical as well as economical considerations.

As synchronous communication places severe limits on flexible start-up and progression, teaching and learning in most of the vhb's courses is based on asynchronous forms of communication.

The courses of the vhb are developed at individual universities; there is no central production unit. Generally, within the universities (or within their institutes which provide online education) there is a clear division of labour. Content is usually provided by professors, who then employ skilled staff for the transformation of that content into an online course. In some cases (mostly at universities of applied sciences), professors also take part in the technical implementation.

Quality management

Evaluation and quality assurance play a central role in the vhb's overall concept. Before it is accepted by the vhb, every new course is evaluated by experts from Bavarian and other universities. Any problems in the sphere of tuition can usually be solved by contact between the central service unit and the individual teacher. If the maintenance of quality requires additional investment in either content or software, the vhb provides the necessary money, provided that the course is still in sufficient demand. Moreover, every course is evaluated again by experts from outside Bavaria after five semesters, i.e. 30 months.

For all evaluations by experts, a standard evaluation sheet¹ is employed. The elaborate and effective quality management has contributed significantly to the success of the vhb. Pedagogical research on e-learning is conducted by individual professors on the basis of their courses. In 2005, the vhb was evaluated by an international group of experts.

Furthermore, the vhb supports competence development by financing courses for online-tutors. The courses are organized by Munich University's Institute of Pedagogy. All tutors working on vhb-courses are encouraged to take part in these courses.

Organisational structure

At the outset, the vhb's structure was modelled after the (then dominant) model of the German *Gremienuniversität*, comprising a variety of assemblies, boards and committees. Over the years it turned out that this model constricted the ability to act quickly and effectively, an ability which is pivotal in the world of online-teaching.

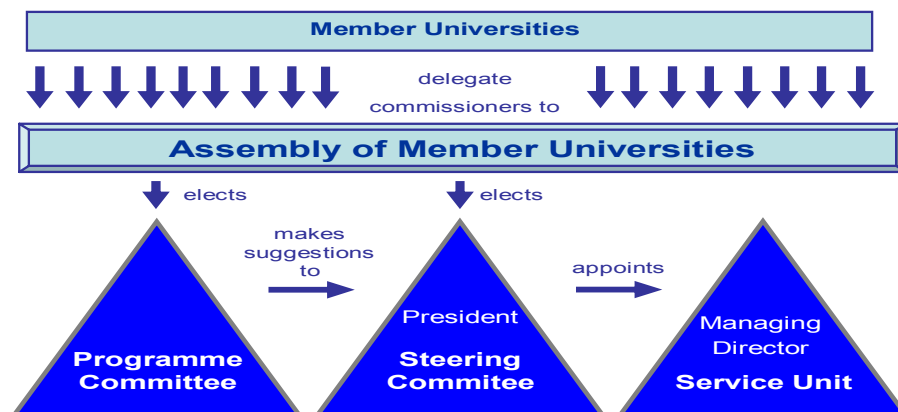
Since the end of 2005 a new organisational structure applies. The main body of the vhb now is the Assembly of Member Universities, in which each member university is represented by a commissioner, who in turn is the key person for all vhb affairs within her or his home university. The commissioners usually are members of the governing body of their university. The Assembly elects the Steering Committee and the Programme Committee.

The Steering Committee consists of three persons. Both the President and the two Vice-Presidents are presidents of member universities and in this function represent the vhb in the Conference of the Presidents of the Bavarian Universities and the Conference of the Presidents of the Universities of Applied Sciences. The Programme Committee consists of eight persons. Five of those must be Vice-Presidents for questions of teaching and studying at their respective universities.

While all offices mentioned so far are held by professors as part of or (mostly) in addition to their ordinary workload, the Managing Director and the employees of the Office work for the vhb full-time. In the Office, 16 employees work in the areas of finances, project management, public relations, student registration and technical support.

¹ The evaluation sheet can be downloaded from:
http://www.vhb.org/dokumente/downloads/vhb-QS-Kriterienkatalog_Englisch.pdf

The following diagram gives an overview over the organisational structure as it is today:



Comparative cost-effectiveness

Up to now, no universally accepted method or standard exists to measure the cost-effectiveness of higher education. What is the output of education? To what extent should the large costs of the universities' infrastructure be taken into account, how should these costs be divided between teaching and research?

What can be undertaken (with some limitations) is a comparison between online and face-to-face education. As far as university teaching is concerned, online teaching can be more cost-effective than face-to-face teaching, at least if it is organised at a level larger than the individual university. If universities use online courses provided by other universities, they can redistribute some of their capacities to intensify teaching on subjects which are in particular demand (and possibly less suitable for online education). Also, they can provide their students with teaching on subjects not covered by their own staff. Professors can to some degree concentrate more on subjects they prefer to teach face-to-face.

A prerequisite for the economical soundness of this approach is the strict orientation to the demand of the universities. That means that a new course is funded only if a sufficient number of universities are willing to replace part of their face-to-face teaching by this course. To identify this demand, the member universities are encouraged to form groups for individual courses in demand, and to apply for the funding of these courses. Corresponding to the means at its disposal, the vhb then chooses which courses to fund and offer.

Conclusions

The success of the vhb depends on its ability to serve the needs of four target groups: students, teachers, universities and the state. The fact that the needs and interests of these four groups are not always identical makes the shaping of the vhb's policy an especially interesting challenge.

Students profit from the flexibility of online teaching. Flexibility is especially important for "non-traditional" students. Therefore, the vhb concentrates on asynchronous forms of communication.

Students of the member universities do not have to pay fees, and they should have no additional costs when using our courses.

The quality of our courses is assured by a three-step system which makes the quality of online teaching much more reliable than the quality of face-to-face teaching.

The possibility of developing e-learning literacy while studying a subject which is part of the curriculum enhances the employability of the students without requiring additional effort.

Teachers experience a wider range of pedagogical possibilities. Many of them also appreciate the possibility of reaching more students with their teaching. Where online teaching is accepted as part of the professors' workload, they also profit from the flexibility online teaching permits.

By offering teaching on standard subjects online with tutors, teachers can concentrate on face-to-face teaching of more advanced or specialised subjects. This can be both more demanding and more satisfactory for the teacher.

Working within the vhb network is also attractive for professors because of the grants by which the vhb funds the development of online courses and their improvement and because of the financing of tutors.

Universities profit from the vhb in several ways:

By setting up the vhb as a common institution and by using its courses jointly, universities considerably enhance their teaching capacities. Not only can they offer additional subjects, they can also release teaching capacities which may be used for other purposes, e.g. for teaching subjects less suitable for online teaching.

Generally, universities face a time of greater competition. But this does not exclude cooperation. On the contrary, in order to survive in a world of growing competition, universities will have to cooperate not only in research, but also in teaching. The vhb is an excellent means of establishing and developing such cooperation. One of the positive effects of this cooperation is the establishing of common quality standards for online teaching.

The vhb avoids competition with its member universities. In particular, the vhb does not develop its own special courses for further and continuing education against payment.

From the point of view of the **state**, the situation can be characterised by the following considerations:

1. Public budgets will continue to be strained, because debts and deficits must be reduced.
2. The number of students will rise considerably at least until 2012. Later, demographical factors indicate a gradual decline. On the other hand, Germany needs to boost the proportion of her population with university-level education, and wants to attract more students from abroad. This could also mean growing numbers of students after 2012.
3. As far as we can see, higher education will continue to be basically state funded. The fees introduced from 2007, with a maximum of €1,000 p.a. per student, will not fundamentally change this situation.
4. Therefore, additional high-quality education must be provided in a cost-effective way. The development with public money of similar online courses in different universities would be economically unwise.
5. Online education which is financed, organised and exploited on a level that encompasses all universities within the responsibility of the Bavarian Ministry of Higher education appears to be an appropriate and necessary response to these challenges. Of course, it cannot be the only response.

To achieve its present position, the vhb had to concentrate on the following key factors, and it will go on doing so in order to continue its successful development:

- continuous improvement of courses and of administrative processes in order to reach maximum user-friendliness
- strict orientation towards the demand of the member universities
- cost-effectiveness
- development of quantity at a high quality level; when in doubt: quality before quantity
- close cooperation with universities and the ministry
- drawing upon the competence in the member universities, using their infrastructure as much as possible
- transparency in all decisions, especially in funding
- lean organisation, simple structures

International Conference of Distance Education - Mexico 2007

Campus Toluca Tecnológico de Monterrey (Mexico).

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