

## Bavarian Virtual University (Virtuelle Hochschule Bayern)

### Facts about the institution

Name of institution	Bavarian Virtual University (Virtuelle Hochschule Bayern - VHB)
URL of institution	www.vhb.org
Country	Germany
Number of employees	16 full-time, about 250 part-time
Levels in the educational system	Higher education level
Interviewer	Professor Morten Flate Paulsen
Interviewees	Professor Dr. Dr. Godehard Ruppert, President of VHB Dr. Paul Rühl, Managing Director of VHB

The Bavarian Virtual University (Virtuelle Hochschule Bayern – VHB) is an institute set up by all nine state universities and all 17 state universities of applied sciences in Bavaria. A further ten universities in Bavaria outside the jurisdiction of the Bavarian Ministry of Higher Education have also become members, e.g. the University of the Armed Forces (Universität der Bundeswehr) and the Film and Television Academy (Hochschule für Film und Fernsehen) in Munich, the Catholic University in Eichstätt and the protestant Augustana Hochschule in Neuendettelsau.

The aim of the VHB is to complement the programmes of the traditional universities, not to replace them. With the help of the VHB, students can earn credit points in individual courses. They cannot obtain degrees, as the VHB does not offer complete courses of study.

In the academic year 2005/2006, 183 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 2005/2006 combined, 329 courses in total were conducted. In these 329 courses, there were 44,500 enrolments by 15,000 individual students.

The VHB helps its member universities to provide high quality education for growing numbers of students in times when state funding does not grow proportionally. It helps the students to organise their individual studies in a more flexible way. This is especially valuable for non-traditional students. It also helps students to complete practical courses and trainings as well as studies abroad without extending the duration of their studies. In addition, by studying through VHB-courses students develop e-learning literacy, thus enhancing their employability.

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 provided by the VHB. Full-time employees of the VHB are administrative and technical personnel.

Until now, the VHB has been financed almost exclusively from state funds; member universities have contributed indirectly through their infrastructure. From summer 2007, member universities will contribute financially in relation to the number of students they have.

## **Contextual factors**

### **Market size**

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. Students of the member universities use the VHB courses without paying fees. Students from other universities and persons interested in lifelong learning can also be admitted on payment of a fee. As the VHB courses are only sold for a fee outside the primary target group, it does not seem completely appropriate to talk about a market in the ordinary sense.

### **Market readiness to use online technology**

Universities and students use online technology on a large scale.

### **Target group acceptance of e-learning**

Traditionally, distance education plays a minor role in Germany compared, for example, to the USA, Canada or the Nordic countries. The network of higher education institutions is quite dense, and the social factors of face-to-face learning play an important role for most students and teachers. A large-scale replacement of face-to-face learning by e-learning would be rather unpopular with the majority in both groups. On the other hand, the growing number of students in times of strained state budgets necessitates the restructuring of university teaching. This need for change is intensified by the Bologna Process. In addition, within the framework of the new Bavarian University Law 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 learning ("blended learning") are part of the solution to the current challenges. The VHB develops new courses to meet the demand of its member universities. As far as teachers are concerned, the readiness to use e-learning differs significantly between individual departments and disciplines.

### **Digital literacy in the population**

The degree of digital literacy within the general public is difficult to assess. According to the latest research, 66% of the German population have access to the internet. For those who have completed secondary education, the figure is 85%. It is assumed that digital literacy in the target group – students – is relatively high. The large majority of students use computers and the internet on a daily basis.

### **National/state policy**

In Germany, education lies within the exclusive jurisdiction of the 16 states ("Länder"). This was particularly emphasised in respect of higher education by the Federal Constitutional Court in 2005. The Free State of Bavaria encourages and promotes the use of ICT at all

levels of the education system. As part of this policy, a “High Tech Offensive” was launched in 1999. The initial funding of the VHB (€11 million) was financed from within this programme.

## History

### **1. How would you describe the history of online education in your institution?**

The VHB was founded in May 2000. Its emergence was the result of the work of promoters of e-learning in the Bavarian universities as well as the decision of the Ministry of Higher Education that these efforts should be coordinated in the best possible way. The activities of the VHB should not be confused with distance education offered by some of the member universities. These courses of study (generally including face-to-face elements) serve for the most part the further education needs of people in employment.

### **2. How has competence in online education developed in your institution, and how has it contributed to your success?**

From the outset, the VHB was based on the competence of the foremost e-learning experts in the Bavarian universities. Given the large variety of the member universities and the even larger breadth of the pedagogical and research interests of the professors concerned, there has been a noticeable development of competence during the first six years of the VHB's existence. 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.

### **3. Has this development been abrupt or would you describe it more as a gradual step-by-step process?**

After the “Big Bang” of the VHB's foundation, development has taken the form of a gradual step-by-step process. This applies not only to the competence development of the people working for the VHB, but also to the development and use of learning management systems (LMS) and platforms as well as to the software the VHB uses for administrative purposes. Given its history, and also the needs of the different disciplines, a variety of LMS is employed within the VHB framework. As these different LMS are updated from time to time, the development in the VHB as a whole can be regarded as a continuous process of improvement.

**4. How has online education been followed up by evaluation and how has this contributed to your success?**

Evaluation plays 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. The students evaluate their courses every semester and, after five semesters, the courses are again evaluated by experts. This 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.

## **Technical issues**

**5. How would you describe competence in information and communication technology in your institution?**

The VHB can draw upon the cumulative ICT competence of its member universities. The central service unit employs few technical staff of its own. This situation could change, should the member universities wish to establish centralised support for a LMS. This issue will be discussed in the near future.

**6. To which extent are distance education courses in your institution based on widely used technologies that can be used by students without requiring them to buy additional hardware or software? (in addition to what they have from before)**

It is necessary for all course developers to ensure that students equipped with ordinary (not high-end) hard- and software can use the VHB's courses. The interpretation of what can be regarded as "ordinary" may vary between the disciplines, e.g. students of engineering will have at their disposal software which may be unknown to students of law.

**7. How would you describe the integration between different IT-systems that are involved in e-learning in your institution? How has this contributed to your success?**

In the VHB with its more than 30 member universities, a variety of LMS is in use. As far as we can judge 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), not to the fact that a variety of systems is used. All courses are on the servers of member universities; no central course-server is used. This could change, at least partially, should the member universities vote for a change of policy.

## 8. What are the strengths and weaknesses of your e-learning administrative systems (from enrolment through delivery to certification)?

Within the VHB framework several systems are in use. All courses are administered by the people responsible, i.e. by professors of the member universities or by members of their staff. It might be argued that this is not the most effective solution, but to transfer the existing courses to a single system would not be economically feasible. For the course catalogue and for registration, we use a central system. The second generation of this system is in preparation and will eliminate some shortcomings which were highlighted by the technical part of the evaluation.

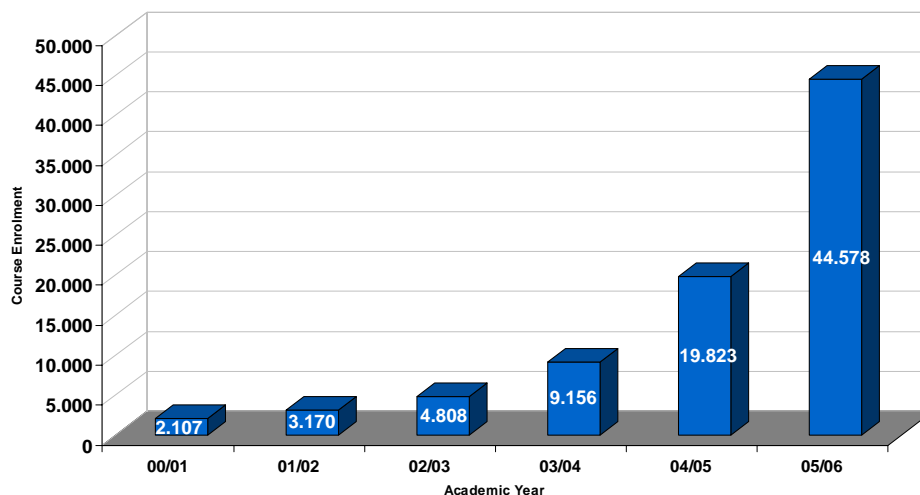
## Courses

### 9. Which types of subjects are covered by online education in your institution and what is the relative importance of different subjects?

In the “Wintersemester” 2006/07 (September 2006 to February 2007), the VHB offers courses in the following fields of study (the number of courses is given in brackets):

- Business Sciences (24)
- Computer Science (17)
- Engineering (25)
- Health (27)
- Key Qualifications (26)
- Law (20)
- Social Work (12)
- Teacher Training (16)

The relative importance of these fields of study (measured in terms of student enrolment) has varied over the years. In its first three years, the VHB offered courses in Business Sciences, Computer Science, Engineering, Health and Key Qualifications. Initially, there was demand mostly for courses in Key Qualifications and Health. Later, the demand for courses in Business Sciences rose significantly. In the academic year 2005/06, Law courses were most popular. The new groups of Social Work and Teacher Training have not yet fully developed their potential. The following graph shows the overall development of student enrolment:



**10. How would you describe the “onlineability” of the subjects your institution has chosen for e-learning?**

We find this question difficult to answer. 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.

**11. Do the online courses provided by your institution have flexible start-up and progression?**

Courses in Health and Law generally have flexible start-up and progression. This is possible due largely to the regulations of the traditional “Staatsexamen” (state examination) where the system of credit points does not apply. In most other subjects, students have to earn their credits by passing a face-to-face or written examination at the end of each course. These examinations are offered once each semester, and this influences the flexibility of the start-up and the progression. Moreover, for many courses where intensive individual tutorial guidance is required, it would be too costly to employ tutors throughout the year, and professors are not generally available for teaching purposes outside the normal teaching periods.

**12. What is the role or importance of synchronous and asynchronous communication between students and teachers and among students themselves?**

Synchronous communication places severe limits on flexible start-up and progression. Therefore, teaching and learning in most of our courses is based on asynchronous forms of communication.

## **Management, strategy and attitudes**

**13. How would you describe involvement from the institution leadership in terms of being supportive, and how has this been important for success?**

The leadership of the VHB has, of course, been clearly supportive of online education from the start. At the level of the individual member universities, some offered at the beginning what might be called low-key support. During the past two to three years, support has generally become much more pro-active. The support of the leadership of the member universities and of the Bavarian Ministry of Higher Education has played an equally decisive role in enabling the VHB to evolve into a mega provider of online education. Clear evidence of the support of the member universities is their decision to contribute their own money to the funding of the VHB from 2007 onwards.

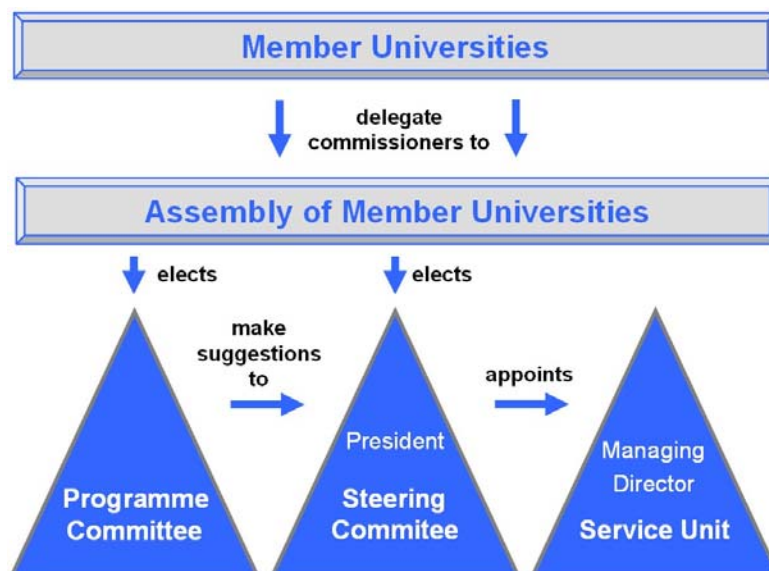
**14. How would you describe the attitudes of the different groups of staff towards online teaching? How has this affected your success?**

In the case of the VHB, this question must be answered with regard to the staff in the member universities. Here, various attitudes can be found – and we are now talking not just about the attitude of university staff towards the VHB, but to online teaching in general. The majority of university teachers do not employ online teaching. This does not necessarily mean downright rejection; there is often just a certain diffidence towards technology. This seems to be the case in the Humanities in particular. It is hardly surprising that in Science and in Business Sciences a larger proportion of the staff is active in online teaching. However, it should be emphasised that there has been a noticeable shift in attitude over the past years. Today, fewer professors regard online-teaching as “un-academic” or even as a threat to their position. On the other hand, the euphoria with which some enthusiasts advocated online teaching as a panacea for all the problems of university teaching has vanished.

**15. Does your institution have a strategy for online education? If yes, what is (briefly) the content of the strategy and how is it followed up by employees in your organisation?**

It is our strategy to support member universities in the best possible way and to the greatest possible extent by providing high quality and cost-effective online teaching. The strategy of the VHB has to conform to the strategy of its member universities and to that of the Bavarian Ministry of Higher Education. As a matter of course, all employees of the VHB adhere to this common strategy.

For its part, the VHB contributes to the development of the overall strategy of the universities and the ministry. The necessary coordination between our institution and the member universities is provided by structural and organisational measures; cf. the following diagram:



The Steering Committee consists of three persons. Both the President and the two Vice-Presidents are presidents or rectors of member universities and in this function represent the VHB in the Conference of the Rectors and Presidents of the Bavarian Universities and the Conference of the Presidents and Rectors of the Universities of Applied Sciences.

**16. How does your institution deal with quality issues related to online education and has quality contributed to success?**

Quality is a key issue for everybody involved in the work of the VHB. The academic and pedagogical quality of the courses is assured by experts in Bavarian and other universities who evaluate every course before it can be used within the VHB framework. In addition, every course is evaluated again after five semesters, i.e. 30 months. The students evaluate their courses every semester. On average, 15% -20% of students take part in these surveys. 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.

**17. How would you describe the effectiveness of your administrative routines in online education?**

Administrative routines should be kept to a minimum and should be automated as far as possible. With all important member universities we have established a method of data exchange that makes it possible for their students to register online with the VHB. Data on examination participation and results are a sensitive issue. These data are exchanged between the examining university and the students, and between the students and their home universities.

**18. To which extent do teachers involved in online education have predictable and manageable workloads?**

The workload of university professors is defined by state regulation. University professors have to teach nine academic hours a week, professors at the universities of applied sciences have to teach 19 hours. By regulation, up to 25% of this workload may consist of online teaching. It is within the competence of the individual university to decide whether onlineteaching is actually credited to the workload of the individual professor. In practice, there are many cases where professors conduct online courses in addition to their workload. State law prohibits the remuneration of this additional work, but the VHB finances tutors.

**19. To which extent does your institution collaborate with other educational institutions and how has this affected success?**

The VHB is the result of cooperation between the Bavarian universities, and it plays a very active part in expanding and deepening this cooperation. We cooperate with many other institutions for online higher education in Germany. Part of this cooperation has a commercial aspect: several institutions from other parts of Germany, but also private institutes of higher education in Bavaria, use VHB courses for their purposes. With other institutions there is a regular exchange of information and experience. In addition, we are continually expanding our contacts abroad. In May 2006, we concluded a cooperation agreement with the Finnish Virtual University.

**20. How would you describe the credibility of your institution (both formal and informal) with the government and public administration and how has this been an important criterion for success?**

The credibility of the VHB with the government and public administration can be described as excellent. The institution successfully provides high quality teaching to growing numbers of students; it has reached the goals and fulfilled the tasks set by the government. Excellent relations between the VHB and the Bavarian Ministry of Higher Education exist not only at the formal level, but also with informal contacts.

**21. How are you able to handle the large number of online courses and students?**

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.

## **Economy**

**22. How would you describe the cost-effectiveness of online education in your institution? How has cost-effectiveness affected success?**

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 on a level larger than the individual university. If universities use online courses provided by other universities, they can use some of their teaching capacities for 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. The VHB has succeeded in cutting down production costs for online courses by about 60% per unit since 2000. This is partly due to the general influence of the learning curve, partly to a more realistic view of the use of multimedia effects: some cost-intensive multimedia elements have proven to be nice to have, but not "need to have".

**23. To which extent is income from operation of online education stable and predictable?**

The VHB is financed by the state and by its member universities. The state budget is passed biannually by the state parliament. This mode of funding provides a stable and predictable

financial basis for the operation of online education for the main target group, i.e. students of the member universities.

Income from other sources (individual users and licensing by other institutions or companies) plays a minor role.

**24. To which extent does your institution experience pressure to be flexible to be able to adapt to a changing market?**

Flexibility, i.e. the ability to respond quickly to the demand of the member universities, is essential for the success of the VHB. To identify this demand, the member universities are encouraged to form groups for individual “cases of demand”, i.e. they can apply for the funding of courses which all members of the group want to integrate into one of their programmes of study. Corresponding to the means at its disposal, the VHB then chooses which courses to offer. To neglect the demands of member universities and to develop new courses exclusively according to the pedagogical preferences of individual professors 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. In short: the pressure mentioned in the question is very high.

**25. To which extent does your institution apply a strategy of flexible employment and use staff to adapt to changes in markets?**

The structure of the VHB permits a maximum of flexible employment. As stated above, the VHB does not employ teaching personnel. At the level of professors or lecturers, teaching is performed by personnel of the member universities. Tutors for the courses are employed by the individual universities on the basis of contracts for work and labour. Thus, no new permanent jobs have to be created. This facilitates quick adaptation to change, e.g. in the possible case of a future decrease of the number of students due to demographic development. This policy also minimises possible hardships, because tutorial work is attractive mainly to senior students and is not intended to provide long-term or permanent employment.

## Additional factors

### 26. What other factors have contributed to sustainability, robustness and the achievement of critical mass in your institution?

For this question, we would like to refer to the following conclusions in which we will try to summarise the orientation of the VHB towards its different target groups.

To establish itself as a mega provider of online education within the framework of public higher education and to expand that position, the VHB has to serve the needs of four target groups:

- students
- professors
- universities
- the state

Students profit from the flexibility of online teaching. Flexibility is especially important for “non-traditional” students. Therefore, we concentrate on asynchronous forms of communication. Students of our member universities do not have to pay fees, and they should have no additional costs when using our courses. This is especially important as general fees will be introduced at our member universities in 2007. 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.

Professors 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, professors 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. Hopefully, the involvement of professors in the work of the VHB will be taken into account in the new remuneration system for professors which is gradually being introduced.

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 most important aspects of this cooperation is the establishing of common quality standards for online teaching.

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 (and would probably be criticised by the Bavarian Court of Audit).
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 demands of the member universities
- cost-effectiveness
- priority given to quality, not 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
- flexibility in regard to the development of the course programme, to the development of personnel and to the use of teaching and learning software