

UNIVERSITIES COOPERATE IN ONLINE TEACHING THE EXPERIENCE OF THE BAVARIAN VIRTUAL UNIVERSITY

Paul RÜHL

Virtuelle Hochschule Bayern, Luitpoldstr. 5, D-96052 Bamberg, Germany
tel: +49-951-8633801 fax: +49-951-8633805 e-mail: paul.ruehl@vhb.org

The Bavarian Virtual University (BVU) is an institute set up by the universities and universities of applied sciences of the Free State of Bavaria, one of the 16 German *Länder*. The BVU is supported by the Bavarian Ministry of Higher Education. At present, there are more than 60,000 course enrolments by more than 25,000 Bavarian students per academic year.

The BVU provides online-courses with an equivalent of two to six credit points (by ECTS standards) which the member universities, all of them traditional brick-and-mortar universities, can integrate into their courses of study. Students of the member universities can attend the courses free of charge. The BVU offers neither complete courses of study nor degrees of its own.

The basic and most important principles of the BVU are: Blended learning at the macro level of the course of study, not at the micro-level of the single course, priority given to asynchronous forms of communication; offering courses which are completely online, thus facilitating the import and export of online-courses between all 31 member universities and allowing a maximum of flexibility to the students. The BVU finances the developing as well as the conducting of its courses. This supports teachers in providing tuition to students from other universities.

1. THE ROLE OF THE BVU WITHIN HIGHER EDUCATION IN BAVARIA

1.1. Higher Education in Bavaria and the aims and tasks of the BVU

Bavaria is one of the 16 German *Länder* (states) and has a population of 12.5 million. According to the German constitution, all matters of education lie within the exclusive jurisdiction of the *Länder*, not of the federal government. This federal structure causes a diversity of approaches and solutions, a diversity which also applies to the implementation and organisation of online teaching and learning at university level. Most of the states leave strategy-building for e-learning completely to their universities, and by far not all of the German universities have developed a comprehensive strategy for the use of information technology and multimedia in teaching and learning. Bavaria is among the minority of German states which actively motivate and support cooperation between universities in online teaching, and it is the only German state financing online teaching across university borders.¹

Typically, German universities are financed by the state – there are but a few private universities in all of Germany, and even those few depend on state subsidies to a large

¹ A survey of the activities of the German states can be found in [1].

extent. Within the jurisdiction of the Bavarian Ministry of Higher Education (*Bayerisches Staatsministerium für Wissenschaft, Forschung und Kunst* – Ministry for Science, Research and the Arts) there are nine universities and 17 universities of applied sciences. In addition, in Bavaria there exist universities and universities of applied sciences administered by the Protestant and Roman Catholic churches, art colleges and musical academies, and the University of the Armed Forces (*Universität der Bundeswehr*) in Munich. Five of these “private” (i.e. not directly state-administered) universities have also become members of the BVU. In the winter term 2009 / 2010, in all Bavarian universities together there were 272,000 students².

An analysis of the number of students in the German states³ shows that compared to the population figure the number of students in Bavaria is comparatively low. Therefore, the Bavarian government has launched a grand-scale programme with the aim of substantially expanding the universities and increasing the number of students. The investment in the BVU is part of this policy.

The BVU was set up in May 2000. Its operation is regulated by a special ordinance of the Free State of Bavaria.⁴ The BVU supports its member universities in providing high quality education for growing numbers of students, and the BVU courses help students to organise their individual studies in a more flexible way, which is especially valuable for non-traditional students and for students having to care for children or other relatives. The BVU courses also help students to complete practical courses and training as well as studies abroad without extending the duration of their studies.

The aim of the BVU is to complement the programmes of the traditional universities, not to replace them. With the support of the BVU, students can earn credit points in individual courses, but they obtain their degrees at their home universities, as the BVU does not offer complete courses of study. The activities of the BVU should not be confused with distance courses offered by some of the member universities. Those courses of study generally include face-to-face elements and for the most part serve the specific needs of employed persons.

1.2. The Organisational Structure of the BVU

At the outset, the BVU’s structure was modelled after the (then dominant) model of the German *Gremienuniversität*, comprising a large 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 seems pivotal in the world of online teaching.

In 2005 a new organisational structure was adopted. The main body of the BVU 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 BVU affairs within her or his home university. When it comes to voting, every university has one vote per 5,000 students. The commissioners usually are members of the governing body of their university. The Assem-

² <http://www.bayern.de/Universitaeten-und-Hochschulen-1359/index.htm>

³

<http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Statistiken/BildungForschungKultur/Hochschulen/Tabellen/Content50/StudierendeInsgesamtBundeslaender,templateId=renderPrint.psml>

⁴ http://www.BVU.org/dokumente/downloads/verordnung_BVU_2005.pdf

bly elects the Programme Committee and the Steering Committee, which appoints the Managing Director.

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 BVU 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 (in fact, in addition to) their ordinary workload, the Managing Director and the employees of the Office or Service Unit (*Geschäftsstelle*) work for the BVU full-time. In the Office, 16 employees work in the areas of finances, project management, public relations, student registration and technical support. Figure 1 shows the organisational structure of the BVU as it is today.

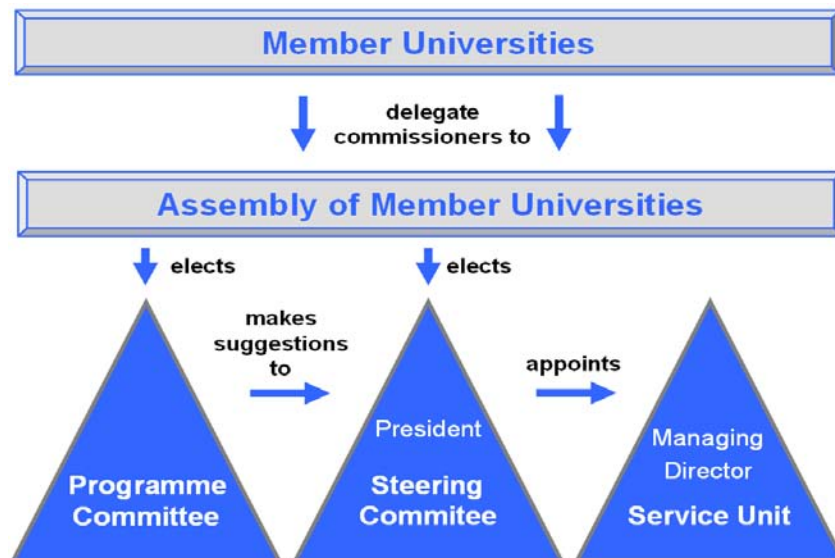


Figure 1: Organisational structure of the BVU

2. THE PRINCIPLES OF THE BVU

In order to function successfully as an institute serving the needs of 31 universities by providing high-quality education in a cost-effective way, the BVU has to follow certain principles. These principles were developed during the first five years of the BVU's existence, and they will be outlined in the following paragraphs. The most important of these principles are "blended learning" at the macro level of the course of study (not of the single course, lecture or seminar), intensive tutorial guidance for the students, a programme policy oriented strictly towards the needs and the demand of the member universities, and an elaborate quality management.

2.1. “Blended Learning” at the Macro Level

The turn of the millennium was a time of widespread “e-learning” euphoria (and general “e-uphoria”, as one might call it, cf. “e-business”, “e-government”, “e-health” etc.). Some experts forecast the decline of the traditional brick-and-mortar universities: already by 2005, it was predicted, half of the German students would never see a traditional university from the inside, but would complete their studies totally online [2].

When it became evident that this prognosis would fail, “blended learning” became the common concept for the integration of computer- and web-aided elements into teaching and learning. “Blended learning” is interpreted by many experts as 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 possibilities 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 rather limited flexibility. In many cases, especially when the web-based elements are exploited only by one professor at one university, micro-level blended learning seems to offer higher quality or added value only at additional costs.

By contrast, the BVU focuses on *macro-level* blended learning with the aim to offer high-quality teaching with intensive tuition in a cost-effective way. 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 (seminars, lectures et cetera). Thus, students can earn some credits in online-courses, but not their complete degree. This combination of face-to-face courses with courses that are delivered completely online (possibly with the final examination being held 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 sometimes 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. Thanks to macro-level blended learning, universities can “import” courses from other universities, including even the support of their students by tutors of the “exporting” university. In contrast to micro-level blended learning, this kind of import also helps universities to compensate a possible lack of teachers as well as room shortages.

In its initial phase, the BVU experimented with micro-level blended learning courses. Students taking part in those courses generally appeared to be satisfied with the face-to-face elements, but an unknown (and for obvious reasons unidentifiable) number of students did not choose to take part because those courses did not offer the students the flexibility they needed or desired. Moreover, from the point of view of the university the import of blended learning courses is hampered by the fact that the importing university has to provide staff and rooms for the face-to-face activities. Several member universities of the BVU have explicitly declared that for them blended learning courses would not be a desirable contribution by the BVU.

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 BVU 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 boost the effect of the necessary *additional* investment in education.

2.2. Programme development and financing

In the summer term of 2010, the BVU offers more than 200 courses in the following fields of study (the number of courses is given in brackets):

- Business Sciences (28)
- Computer Science (10)
- Engineering (20)
- Health (31)
- Key Qualifications (23)
- Law (25)
- Languages (33)
- Social Sciences (1)
- Social Work (15)
- Teacher Training (17)

Figure 2: Courses offered in the summer term of 2010

Approximately 50 additional courses are in preparation, e.g. courses in Health Care and Health Care Management, Linguistics and Religious Studies.

Sometimes the question of the “onlineability” of different subjects is raised. Within the BVU, 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 BVU’s courses is based on asynchronous forms of communication.

The courses of the BVU 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.

How does the BVU develop and enlarge its programme? The process of entering new courses into the programme of the BVU consists of two main steps: first, a call for proposals, and then a call for tender. The whole process is embedded in the BVU's quality management.

Call for proposals: Once a year, member universities are invited to submit proposals for new online courses. For each course the interested universities form a consortium with a consortium leader. Proposals by only one university are not eligible, with the rare exception of cases where a subject is taught at just one Bavarian university, e.g. veterinary medicine. Proposals for such subjects are eligible if they are submitted in cooperation with a university outside of Bavaria.

The proposals are submitted in a standardised form which can be downloaded from the BVU's website⁵. There must be a demand for the given course at least at two member universities, and the online course, once it is completed, must replace part of the face-to-face teaching at the universities of the consortium. The consortium must define the curriculum or curricula (courses of study) in which the new online course will be employed, and they must give an estimate of the number of students they expect to participate per academic year.

The consortia and their courses do not function as "closed shops". All member universities are entitled to employ the courses, and students of all member universities can attend the courses free of charge, no matter whether their university is a member of the given consortium or not. Students from universities outside a consortium are advised to make sure whether their home university will acknowledge credit points earned in such courses before they enrol.

The proposals are examined by the BVU's Programme Committee. The Programme Committee selects the proposals most suitable for funding and passes its recommendations to the Steering Committee. The Programme Committee does not necessarily favour the proposals with the highest demand, i.e. with the largest number of expected participants. Special attention is paid to proposals for courses which make possible the establishing of new curricula at member universities, e.g. M.A. programmes at universities of applied sciences.

On the basis of the recommendations of the Programme Committee, the Steering Committee decides which proposals to fund. The consortia backing those proposals are then invited to submit detailed descriptions of the courses.

Call for tender: These descriptions are the basis for the next step of the process, the call for tender. Generally (but not necessarily) bidders make a bid both for the construction of the course and for the tutorial guidance of the students. The production of standard courses with an equivalent of two hours per week and semester (mostly 3 ECTS credit points) can be funded with up to 40,000 € Costs exceeding this sum must be born by the consortium. Up to now, there have hardly been any such instances.

For the majority of proposals one bid is submitted by a member of the given consortium, but there are instances where competing bids are made. There are also instances where the only bid comes from a university outside of Bavaria.

The call for tender is published on the BVU's website. In addition, it is distributed to organisations similar to the BVU in other parts of Germany and the German speaking countries. The BVU encourages the use of courses which have been developed at universities

⁵ Cf. <http://www.vhb.org/ausschreibung>

outside of Bavaria; it is the policy of the BVU not to fund the design and development of courses if a suitable course for the given purpose exists elsewhere and a license for the BVU can be obtained.

In order to be accepted as producer of a given course, bidders have to conclude a contract with the BVU where they transfer to the BVU the exclusive right to use the course in online form. In cases where the BVU is not the exclusive financer, appropriate arrangements are made.

The producer further commits himself to arrange personally for the operation of the course (i.e. to provide tutorial services and guidance) for at least five years. Should the producer not be in the position to operate the course any more, the BVU can transfer the operation to somebody else. Up to now there have been few instances where a transfer of course operation has been necessary. In most of these cases the course operation was taken over by another professor of the producer's university.

All members of a given consortium have the right to and are encouraged to take part in the quality assurance process during the production of the course, especially by taking part in milestone meetings where the state of the work in progress is presented and discussed. Members of the BVU's project management take part in these meetings. Thus, all members of a consortium can make sure that the final course will meet their expectations; problems can be solved at the earliest possible stage.

2.3. Intensive tutorial guidance

Learning is to a large degree based on interaction. In comprehensive online courses without sufficient interaction, i.e. without communication with a teacher or tutor, a considerable dropout rate is to be feared. Therefore, the BVU funds not only the developing of courses, but also their regular performance. Moreover, the idea of state-wide exploitation of the courses, i.e. of the "import" and "export" of courses between universities, would not be viable if there was no funding for the tutoring of students from universities other than the university of the course provider. There must be a sufficient incentive for this additional teaching effort. Therefore, the BVU funds the tutorial guidance of the students in standard courses with 25 € per student. This money is paid if the student has taken part in the final examination. This rule has been criticised as there are instances where a student makes intensive use of tutorial guidance but does not take part in the final examination. On the other hand, there are instances where a student merely enrolls but does not take part in the course, so mere enrolment would be unsuitable as an indicator for the amount of tutorial work. The most objective measurement of the tutorial work spent on every student would be the tracking of the student's online activities, but this would infringe laws on data protection. The present regulation appears to be acceptable because it also applies to students of the teacher's own university, so that this university gets additional funds.

There has also been raised the question whether the successful passing of an examination rather than the mere participation should be the criterion for the funding of tuition. This idea has been rejected after thorough discussions in both Programme Committee and Steering Committee, because this solution might be interpreted by critics as an incentive for course providers to offer "easy" examinations. This, in turn, would not be in accordance with the BVU's effort in quality assurance (see below).

2.4. Quality management

Evaluation and quality assurance play a central role in the BVU's overall concept. The development of every new course is closely accompanied by experts from the consortium which needs the course and by the project management of the BVU Office. Together, they approve the new course for inclusion into the BVU programme.

Students evaluate their courses every semester, and the results of these evaluations are discussed with the course providers. After five terms of operation, each course is evaluated by two peer experts (always professors from outside of Bavaria), one of them focusing on matters of media pedagogy and didactics, the other on the subject content. The results of the students' evaluation are made available to the peers, too. For the student and expert evaluations, standard evaluation sheets⁶ are employed. The results of the peer evaluation are discussed by the Programme Committee and the Steering Committee and with the course providers. Any problems in the sphere of tuition addressed in the student evaluation can usually be solved by the BVU Office and the individual teacher.

Course providers can apply for the funding of the updating of their courses if the necessary work exceeds the occasional updating university teachers are expected to perform in face-to-face teaching. The BVU provides the necessary funds as long as there is a sufficient demand for the course.

The BVU funds the training of online tutors for its courses. After of a call for tender, a training programme offered by the Department of Psychology of Munich University was chosen for his purpose. Staff members of the BVU's course providers can take part in the training programme at the expense of the BVU. Furthermore, the BVU supports competence development for professors of its member universities by organising workshops on e-learning.

2.5. Technical issues

In the BVU with its 31 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 BVU, which in the year 2000 started with 36 courses prepared for different subjects by different universities. For the courses, 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. The central server of the Office is for information and registration only.

It has been argued that the variety of LMS 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) did not refer to the fact that a variety of systems is used. Besides, the migration 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.

⁶ An English version of the evaluation sheet can be downloaded from:
http://www.vhb.org/dokumente/downloads/vhb-QS-Kriterienkatalog_Englisch.pdf

While unification of LMS does not seem to be an urgent issue, the establishment of an authorisation and authentication infrastructure (AAI) is making progress. As a first step, a way of data exchange has been established with all important member universities that makes online-registration with the BVU 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 BVU. An AAI based on *Shibboleth* is being introduced in cooperation with the Leibniz Computational Centre (*Leibniz-Rechenzentrum - LRZ*) in Munich.

3. RESULTS

In 2007, the BVU was identified as one of Europe’s “mega-providers of higher education online” by the European Union’s MegaTrends project.⁷ This study was based on data from 2005, when the BVU had about 20,000 course enrolments.

Today, there are more than 60,000 course enrolments by more than 25,000 students per academic year. Figure 3 shows the development of course enrolment over the years:

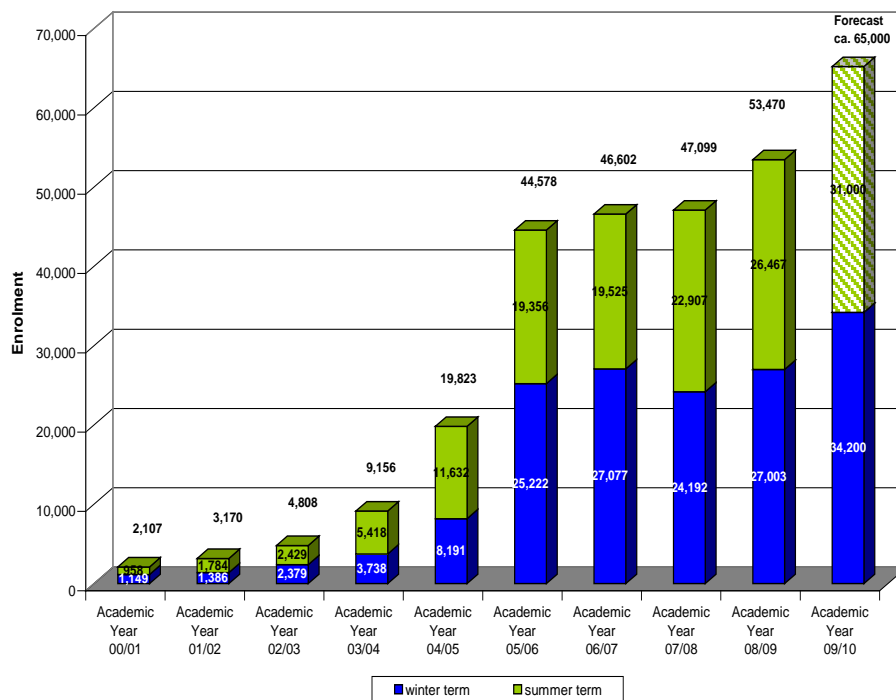


Figure 3: Student enrolment

⁷ http://www.nettskolen.com/in_english/megatrends/

In the terms for which complete data are available, 56% of the students who enrolled in a course took part in the final examination. 57.5% of the total enrolment is in courses offered by a university other than the student's home university. This shows that the "import" and "export" of teaching across university borders has become a widespread reality.

At present, the most popular subject areas are Law, Business Sciences and Health. There is a noticeable difference between individual fields of study regarding the participation in final examinations (cf. fig. 4). This can partly be explained by the fact that some students use BVU courses as an additional source of information and an opportunity to receive extra training and tutorial guidance, but wish to obtain the necessary credits from their home university.

	A	B	C
Business Sciences	7632	14,3%	54,5%
Computer Science	1493	2,8%	56,3%
Engineering	2659	5,0%	66,4%
Health	7486	14,0%	91,6%
Key Qualifications	7344	13,7%	60,6%
Law	19509	36,5%	42,1%
Languages	3386	6,3%	59,6%
Social Work	2356	4,4%	72,1%
Teacher Training	1605	3,0%	79,4%
Total	53470	100%	56,0%

<p>A: Enrolment in field of studies B: Percentage of total enrolment C: Percentage of enrolment in field of studies resulting in examination</p>

Figure 4: Enrolment and examinations by fields of study, academic year 2008 / 2009

In the period from 2000 until 2008, the BVU was financed with more than 22 million €. For the years 2009 until 2013, an agreement was concluded between the Ministry of Higher Education, the Bavarian universities, the Bavarian universities of applied sciences and the BVU by which the annual budget of the BVU was raised to more than 5 million €

4. CONCLUSIONS

The success and the further development of the BVU depend on its ability to serve the needs of three target groups: students, teachers and universities. By serving the needs of these target groups, the BVU serves the needs of society and state, which in turn provide the necessary funding.

Students profit from the flexibility of online teaching which is especially important for "non-traditional" students. Therefore, the BVU concentrates on asynchronous forms of communication. Students of the member universities do not have to pay any additional fees.

The quality of the courses is assured by an elaborate system (cf. 2.3.) which makes the quality of online teaching even more reliable than the quality of face-to-face teaching. The possibility of developing e-learning literacy while studying a subject as 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 tutored online teaching on standard subjects, teachers can focus their face-to-face teaching on more advanced or specialised subjects. This can be both more demanding and more satisfactory.

Working within the BVU network is also attractive for professors because of the grants by which the BVU funds the development and improvement of online courses and because of the financing of tutors. Moreover, funding by the BVU is considered "third-party-funding" in the performance record of the respective professors and faculties.

Universities profit from the BVU in several ways. By using BVU courses, universities considerably enhance their teaching capacities. Not only can they offer additional subjects, they can also restructure teaching capacities and use them for subjects less suitable for online teaching.

Generally, universities face times of more intensive 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 BVU 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 BVU avoids competition with its member universities. In particular, the BVU does not develop for-profit courses for further and continuing education.

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 and especially Bavaria wish to boost the proportion of their population with university-level education, and they wish to attract more students from abroad. This could also lead to 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 in Bavaria in 2007, with a maximum of €1,000 p.a. per student, cannot 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 by a joint venture of all universities together with the Bavarian Ministry of Higher Education appears to be an appropriate and necessary response to these challenges. Of course, this cannot be the single response.

To achieve its present position, the BVU 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 of Higher Education,
- 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.

The development of the BVU from 2014 on, i.e. after the period of the current agreement, will depend on the priorities set by member universities and Ministry. Possible fields of additional effort may be lifelong learning, courses in English and additional courses in the Humanities, which up to now have played a minor role. The BVU is interested in developing international cooperation to promote “virtual” student mobility.

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