VLC E-Bologna: The Bologna Process and the Virtual Linguistics Campus

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In the recently signed Bologna Protocol, the European universities commit to a major restructuring of their systems. The agreement aims at unification of degrees and will move closer to the Anglo-American system. The basic framework adopted is of three cycles of higher education qualification: bachelor, master and doctoral degrees. During a transition phase of at least three to five years this implies that students of different degree programs have to be served. How can this be realized considering expenditure shortcuts and the reduction of staff? Among the solutions, e-learning, in this case often referred to as "E-Bologna", seems to be most promising.

This paper discusses the solutions to the Bologna "dilemma" provided by the world's largest E-Learning platform for theoretical and applied linguistics, the "Virtual Linguistics Campus" www.linguistics-online.com hosted by the Department of English at the University of Marburg, Germany.

1. The Current Situation

Currently, German universities and those of the neighboring European countries (currently 45 countries) have been undergoing an enormous change. This change was triggered in 1999 with the joint declaration of the European ministers of education in Bologna, Italy. For this reason, the resulting process has been referred to as the "Bologna Process". Meanwhile three further meetings in Prague (2001), Berlin (2003), and Bergen (2005) have affirmed, extended, and partially redefined the main goals of the Bologna Process (INT01):

Bologna (1999); Definition of main goals

- Adoption of a system of easily readable and comparable degrees
- Adoption of a system essentially based on two cycles
- · Establishment of a system of credits
- · Promotion of mobility
- Promotion of European cooperation in quality assurance
- Promotion of the European dimensions in higher education

Prague (2001); Extension

- Lifelong learning
- Promoting the attractiveness of the European higher education area

Berlin (2003); Setting Priorities

- · Quality assurance
- Two-cycle system
- Recognition of degrees and periods of studies

Bergen (2005); Further Emphasis

- Higher education and research
- Mobility

Even though many German universities seem to have achieved a number of these goals in the meantime, the implementation of the Bologna Process in its entirety involves numerous, almost

insurmountable problems:

"I think that the largest reform to affect the German university system since 1945, if not since Humboldt, is going down a dead end street, because it has been burdened with too many goals on top of a lack of sufficient equipment. Currently, I cannot actually see anything that has likely been successful, instead there are numerous half-hearted attempts and above all much well-meant self-deception." (translated into English, from Münkler: 2005, 57).

In other words, to realize the goals of the Bologna Process the German university system lacks almost all necessary foundations, most importantly, however, financial support and the necessary staff. Even though many new "Bologna-type" degree programs have recently been accredited, they are not really innovative and lack even the most rudimentary aspects of quality assurance. In the Humanities, these new programs are by and large old Magister (the German "pre-Bologna" version of the M.A., but as a single-cycle course of study) or philological degree programs that have been redefined under enormous time pressure. They are not at all innovative and use the same content that has been taught for over a decade.

Furthermore, since the size of staff has not grown at all, it has turned out to be highly problematic to serve the "old" and the new "Bologna" degree programs at the same time. Thus, during a transition phase of three to five years, this discrepancy between the constant or even shrinking number of staff and the steadily growing number of students will even worsen the current situation. The Bologna Process is turning more and more into a "Bologna Dilemma". In addition to this transitional problem, most German universities will see an enormous increase of student figures around 2012 due to the reduction of secondary school education from 9 to 8 years. And last but not least, the Prague (2001) priority of lifelong learning has not even been considered yet. If taken seriously, this will lead to further capacity problems.

Thus, without alternative concepts, a reasonable realization of the Bologna Process is impossible during this decade and the years to come. To be honest, all those new courses of study that have been accredited recently do not deserve the name and should not have been accredited at all, for the following main reasons:

- They are not innovative.
- They do not satisfy any aspects of quality assurance.
- They suffer from capacity problems (staff, lecture halls, etc.).

Thus, they violate the most fundamental criteria of accrediting "Bologna" courses of study (INT02:3).

2. Towards a Solution

In order to avoid a mere juggling with labels, i.e. "old" degree programs are relabeled as "Bologna" degree programs, but to achieve a true innovation of the German system that adheres to the goals of the Bologna Process the following theoretical options might be considered for the transitional phase or even beyond:

- Ignore the Bologna Process
- Neglect the "old" degree programs
- Wait for better times, until then continue
- Increase the number of staff
- Use content that reduces human assistance

Politically, neither a) nor b) constitute any desirable alternative since these options would lead to

disciplinary actions or to massive student protests.

Thus, only the options c) to e) are worthwhile further consideration. Currently, most German universities favor a combination of (c) and (d). They undertake enormous efforts to have as many as possible "Bologna" degree programs accredited but mainly continue as usual. If realizational problems, especially staff capacity problems, occur, part-time lecturers or even students are employed as tutors to solve temporary teaching problems. However, this combination of options is not very helpful. In many cases, even the number of part-time lectures employed is insufficient (due to financial problems) and – what is even worse – the quality of teaching may suffer considerably.

The only reasonable solution to this dilemma (quality-assured new courses but no increase of staff and financial resources) is the incorporation of those new variants of teaching that require less human assistance than traditional forms, i.e. option (e). Theoretically, this could mean a reduction of in-class teaching. A course that traditionally consists of ten 90-minutes in-class units could be reduced to five units of equal length. Such a variant, however, would probably result in a reduction of scientific depth. Thus, the only way out of the "Bologna Dilemma" are those variants of teaching and learning that are based – at least to some extent – on phases of self-explanatory self-study that do not require further human assistance. In other words, a reasonable realization of the goals of the Bologna Process necessitates all those forms of e-learning that reduce the human factor to a minimum.

2.1. The Necessity of E-Learning

In 2002, the members of the European Association of Distance Teaching Universities (EADTU) agreed on a common flanking action, called "E-Bologna". This is to be seen as the umbrella for collaboration and joint projects between members of EADTU, responding to the Bologna process by building synergies between the main actors in the field.

However, the mere claim that e-learning of whatever type solves the "Bologna Dilemma" misses the point. Before we define the Bologna-related benefits of e-learning we have to isolate all those properties that define e-learning in general:

· Quality assurance

E-learning units can be made available to an external examiner, the content of traditional units, by contrast, remains hidden.

• Usability and standardization

The more the users have access to a particular e-learning unit, the higher the degree of standardization.

Multimediality

E-learning units may incorporate all multimedia elements.

• Instantaneous updating and publication

Errors can instantaneously be corrected, the contents of a unit can easily be published.

• Local and temporal independence

Students can access an e-learning unit from any place at any time.

• Virtual mobility

Students do not have to leave their home university.

• Sustainability of the materials

Courses, classes and the e-learning units within them can be accessed long after their deactivation.

These benefits of e-learning do not constitute any necessary pre-conditions for the realization of the Bologna process; there is no causal relation between e-learning and the Bologna Process at all. All aspects mentioned can be applied to a combination of e-learning and the traditional courses of study (see German governmental program: New Media in Education, INT03). Rather, we have to concentrate on only those advantages of e-learning that can be confined to the realization of the Bologna Process, i.e. those aspects that help to overcome the capacity problem (staff, lecture halls, etc.). This requires an approach towards e-learning that not only incorporates its technological foundations but also addresses the human factor, in particular the question: How much human assistance is required in a particular e-learning environment?

2.2. E-Learning for the Bologna Process

E-learning can be defined in various ways. Rosenberg (2001:28-32) defines e-learning as an Internet-based technology exhibiting three fundamental properties:

- *E-learning is networked.* (DVDs etc., as useful as they may be for the delivery of information and content, lack the networkability and thus cannot be updated instantaneously).
- E-learning is delivered via computers using standard Internet technology. (i.e. TCP/IP protocol, standard browsers)
- *E-learning goes beyond traditional learning paradigms.* (Techniques beyond the delivery of information or simple instructions)

These properties exclude offline-media from e-learning scenarios. Traditional media, e.g. books or other print media as well as offline-media, such as CD-ROM or DVD, cannot be used as the backbone of an e-learning environment since they ignore one of the most important property of networked e-learning: instantaneous updatability.

Beyond these fundamental properties the following additional aspects have to be taken into account:

- Aspects of administration and communication
- The organization and presentation of content
- The underlying didactic conception
- The degree of human assistance

There is agreement that any suitable e-learning platform must incorporate the main communicative elements, such as chat, message board, e-mail, etc. Concerning the organization and the presentation of content, however, it is not clear in what way the presentation of content defines e-learning. Is a simple PDF-document sufficient, does a digital slide show guarantee successful e-learning or should all content be presented in a complex and highly interactive multimedia format ready for self-study? The definition of the underlying didactic conception and the degree of human assistance play only marginal roles in the discussion of e-learning.

Today, e-learning is defined as a networked learning activity where the materials are delivered via a suitable platform that includes the main communicative elements. Such a definition, which ignores the three variables content, didactics and human assistance is not helpful to solve the "Bologna Dilemma". The main question is: How can we reduce the degree of human assistance?

2.3. The Degree of Human Assistance

On the VLC, the following techniques are employed to reduce the degree of human assistance:

• Multimedia technology

The majority of the VLC e-learning units involves such a high degree of multimediality that the

The Virtual Linguistics Campus

Become a member of the virtual linguistics community.

The Virtual Linguistics Campus (VLC) is the world's largest e-learning platform for linguistics. The VLC offers fully certified linguistic courses and course material for theoretical and applied linguistics. Furthermore, it includes a variety of linguistic tools and all the communicative facilities necessary for successful e-learning.

Courses

The VLC currently offers more than 40 fully certified courses in all fields of linguistics. Courses are subdivided into classes, which can be specifically compiled to match the needs of different subjects. Each course usually consists of 15 units equivalent to 90 minutes of in-class teaching. They can be studied and taught strictly online or as blending learning courses.





Global Access

The Global Access facility offers access to currently more than 250 e-learning units of the VLC. This includes online dictionary support, a glossary of linguistic terms, a language index with extensive sound examples and much more.

The Global Access facility is available for students and teachers, as well as linguistic departments.

Fieldwork Classes

The VLC permanently offers several fieldwork classes, all as online courses without in-class teaching. The linguistic properties of the language in focus can be investigated by interacting with the native speaker and the objects in the room. This way of true explorative learning has closed an important gap in linguistic education.

The VLC offers 14 languages among them Arabic George

The VLC offers 14 languages, among them Arabic, Georgian, Korean and Welsh.



Studying and Teaching with the VLC

The VLC with all of its facilities can be used by students to study the courses available or for exam preparation. It can also be used by teachers of linguistics to make teaching easier and more efficient.

If you any questions about the VLC, please visit our web site or contact us at: info@linguistics-online.com

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contents are by and large self-explanatory, and, in some cases, even the demands on explorative learning are satisfied (Unger, 2006). As pointed out by Hente (2006) in-class teaching, if necessary at all, gains a completely new quality: It becomes supplementary rather than introductory. Since the contents of a unit no longer have to be introduced by the human instructor, additional in-class teaching can be confined to short repetitions or, it becomes an additional Practical where the knowledge gained through the interaction with the online material (and the workbook information) can be put to test. To achieve such a high degree of multimediality, however, a large number of principles of content generation have to be observed: integration of as many multimedia elements as possible, a high degree of interactivity, etc. E-learning systems that only rely on PDF-documents are not suited to reduce the human factor and still require full in-class tuition.

Computerized evaluation techniques

All e-learning units on the VLC involve additional tasks, for example Worksheets or analysis tasks which have to be evaluated and marked by human instructors. The integration of more advanced technologies, such as intelligent tutoring or the pedagogical agent technology (Franke: 2006) enables us to design digital tasks whose evaluation and marking is performed solely by the machine. Furthermore, the VLC Development Team has developed server-based techniques, by means of which e-tests and e-analyses can be activated and deactivated automatically. These two methods of presenting and evaluating student tasks reduce the involvement of the instructor to a considerable degree.

Sustainability of the materials

Even though the "sustainability" factor applies to e-learning in general, it can also be considered an important factor of assistance reduction. In contrast to traditional teaching and learning scenarios, where the materials are no longer accessible after a course/class is over, well-designed e-learning platforms allow the students to work with the materials for a long time even after its deactivation (Masters, 2006). Instructors may thus be freed from additional questions, e-mails about understanding problems, etc. On the VLC, all classes remain active for at least six months, and, since they all involve a workbook, they will probably remain active without any limit.

The possibility of reducing the degree of human assistance enables us to redefine in-class tuition. In some classes, or in selected e-learning units, in-class tuition may be completely abandoned. These classes/units mainly involve content with declarative rather than procedural knowledge items, i.e. factual knowledge that is completely self-explanatory and can be introduced without any additional in-class teaching. In fact, for many units it can be shown that traditional teaching scenarios would even be counter-productive since human teachers cannot reproduce the information realized by the multimedia elements on the VLC in-class. This is particularly true for all those elearning units that involve massive sound material and a large number of animations.

2.4. Human Resistance

The only realistic alternative to solve the "Bologna Dilemma" is a variant of e-learning which is mainly based on content ready for self-study. Even though this scenario still requires human assistance, e.g. the correction of term papers, the use of digital communication channels, etc., it reduces the amount of human assistance to a considerable degree. However, in the Humanities such e-learning scenarios are confronted with enormous resistance. According to Wolff (2006) this resistance is determined by the following factors:

• Teachers and their attitudes towards e-learning

In the Natural Sciences, learning is generally considered a process which learners can master on

their own. In the Humanities, by contrast, learning is at least in part believed to be a social process that can only be mastered if learners can jointly work on their learning items. The mere presentation of facts would thus run counter to traditional teaching and learning scenarios in the humanities.

• Learning traditions

Many teachers are simply not prepared to change their teaching style and their learning concepts. Even though it has been acknowledged for a long time that university education has to be improved, the reluctance to change traditional teaching scenarios still exists and prevents new approaches from being applied (Glotz, 1996:126).

• The e-learning content

Content can be subdivided into declarative and procedural content. Generally, it is assumed that declarative content, i.e. the teaching of simple facts, can more easily be converted into webbased content. However, as many examples on the VLC have illustrated, for instance, the multitude of analysis tasks in advanced linguistic classes or the use of fieldwork data, numerous techniques are now available to convert even procedural knowledge into a suitable web-based format. Furthermore, there are communicative devices, such as Sesink's interactive script, that solve additional problems, such as group work (INT05).

Even though alternative solutions do not exist, there is an enormous degree of resistance. To overcome this resistance by reasonable solutions is one of the goals of the VLC. The following example of a course in *phonology* illustrates the framework according to which the VLC solution can solve the "Bologna Dilemma".

3. The Virtual Linguistics Campus – an Overview

The Virtual Linguistics Campus (VLC, www.linguistics-online.com) is the world's largest elearning platform for theoretical and applied linguistics. It is organized like a real university campus, i.e. it offers numerous facilities for information, registration, recreation, experimentation, and many more.

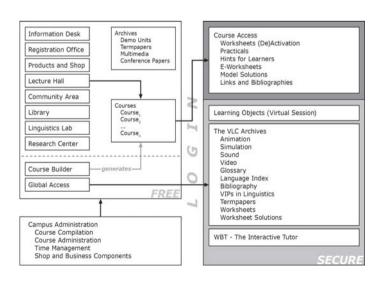


Fig. 1: The Architecture of the Virtual Linguistics Campus

Technologically, the VLC is organized into a free zone which is accessible without any restrictions and into a protected zone which requires specific login details (username and password). The system architecture of the VLC is exhibited in Figure 1.

Whereas the free zone contains most of the information and administration components, the protected or 'secure' zone stores all VLC e-learning units and the subsidiary technologies (courses, communication facilities, interactive Worksheets, etc.).

3.1. The VLC E-Learning Concept

The primary purpose of the VLC is to offer linguistic material for self-study as stand-alone units or within linguistic courses. The VLC courses can be offered with or without additional face-to-face teaching (blended- or online-learning). That both blended- and online-learning can easily be combined on the VLC is probably one of the major innovations in the world of e-learning.

3.1.1. Courses on the VLC

One of the advantages of the VLC is that the modular structure of the e-learning units allows the generation of several variants of linguistic courses tailored for particular degree programs (B.A., M.A., etc.). For this reason, each course involves a so-called *course start site* where common information for all classes is presented and the different classes are listed. Figure 2 presents the course start site for the VLC courses in *Phonology*.

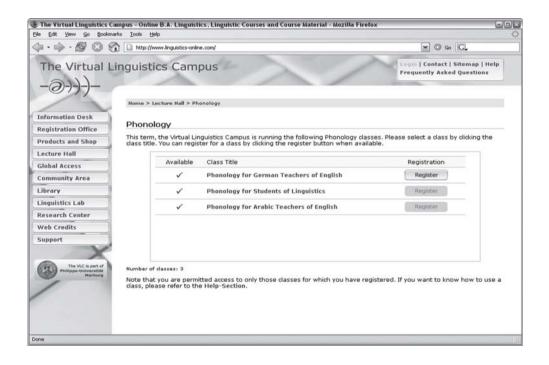


Fig. 2: The course start site for phonology courses

All VLC courses consist of one or more classes. A class is defined as a collection of e-learning units tailored for a particular degree program or for a particular university. The phonology course as exhibited in Figure 2 presents three different classes:

- Phonology for German Teachers of English (German Teacher Training)
- Phonology for Students of Linguistics (B.A. and M.A. program)
- Phonology for Arabic Teachers of English (Class for Baghdad University)

The number of e-learning units, each unit the digital equivalent of a 90-minutes face-to-face lecture or seminar, is fixed. Normally, the minimum number of e-learning units per class is ten; however, there may be specific cases, e.g. summer-school courses with even fewer e-learning units. These units can be accessed from the class start site.

In addition to the content-related links, each class start site provides access to the class bibliography, to a specified link section, to the class-related message board and to the chat room. Figure 3 exhibits the class start site for the class *Phonology for German Teachers of English* from the VLC phonology course.

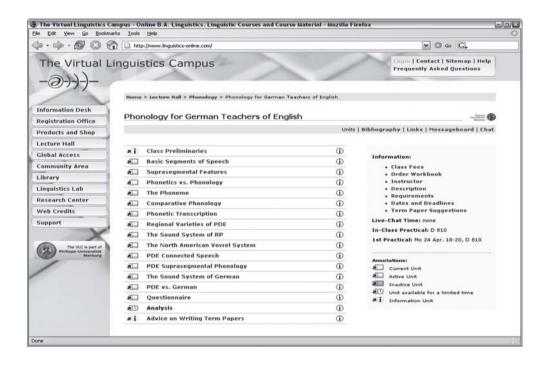


Fig. 3: The class start site for Phonology for German Teachers of English

It consists of thirteen e-learning units, plus a preliminary unit (general information for the students), a questionnaire for student evaluation, a temporarily accessible analysis task, and a unit that provides detailed information about writing term papers.

Up to this level, all information on the VLC is freely accessible. This includes detailed information about the contents of each e-learning unit of a class via the information symbol to the right of its title (Fig. 3). The e-learning unit themselves, however, reside in the protected zone of the VLC (Fig. 1). Thus, the loading of any e-learning unit requires specific login details (username and password).

3.1.2. E-Learning Units

All e-learning units are structured according to a common format which is presented in Figure 4.

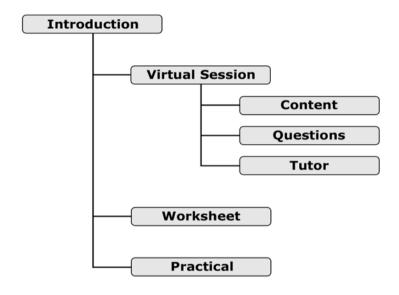


Fig. 4: The structure of an e-learning unit on the VLC

Each e-learning unit consists of three parts:

- the *Virtual Session* (the main content of an e-learning unit)
- the Worksheet (an interactive task, the digital equivalent of a homework assignment)
- the *Practical* (a collection of tasks and problems to be solved in class or at home)

This subdivision is reflected in the navigation menu on the start sites of all e-learning units where the goals and the central topics of a unit (which includes specified bibliographical references) are defined. Even though all e-learning units adhere to this structure, they can be used and activated along different lines:

- Encapsulated: each unit can be accessed independently
- Sequential: each unit builds upon its predecessor
- Restricted: each unit is available for a limited period
- Thus, depending on the class format and the material to be taught, the VLC offers several variants of activating the e-learning units.

3.1.3. Online-Learning

All e-learning units on the VLC can be embedded within courses with or without in-class instruction. Both course variants use the VLC e-learning units as outlined in figure 4. The only difference between both variants of e-learning is the addition/lack of face-to-face teaching. In an online-course there is no additional face-to-face instruction, teaching and learning are solely based on the elements of the e-learning units and on the use of the communicative elements on the VLC (message board, chat etc.). Blended-learning proceeds along the same lines, but it involves additional face-to-face teaching.

The formal difference between these two types is realized by means of a variable that defines the type of practical sheet:

- practical sheet with model-solutions for online students
- practical sheet without model-solutions for in-class students

In the latter case, the practical sheet can be used as a handout that guides the teacher through the in-class phase, since it contains a number of unit-related tasks for in-class discussion. Even though instructors are free to organize their lessons according to their own principles, the practical sheet has shown to be a useful supplement if not a central option for in-class discussions.

To summarize, VLC online- and blended-learning are defined along similar lines: They both use all options of an e-learning unit. The only difference is the additional in-class phase in a blended-learning environment. Thus blended-learning on the VLC can be defined as online-learning plus topic-related in-class teaching.

3.2. The VLC Solution: An Example

As already pointed out, a reasonable solution to the "Bologna Dilemma" necessitates the integration of highly interactive and self-explanatory e-learning units in conjunction with a reduction of human assistance. The corresponding in-class phases for such e-learning units can thus be dedicated to something else, e.g. for additional explanations, practical analyses, or discussion of term papers. Alternatively, the in-class phase can be reduced, e.g. from 90 to 45 minutes, or it can be omitted altogether. The time gained can thus be used to support the Bologna Process. Instead of teaching students of the "old" and several new "Bologna" degree programs in one class, the VLC solution makes it possible to split a class into two or more groups/classes where each class meets the demands of the particular degree program. For example, students who want to become teachers of English are no longer confronted with topics irrelevant for their future career, likewise, students of linguistics are given the theoretical linguistic foundation they need. In other words, the VLC solution uses the in-class time that is normally confined to one class to serve several classes at the same time.

Such a system of splitting a class into two can best be realized using content in *phonetics and phonology*. Thus it is not surprising that the following proposal illustrates the VLC version of E-Bologna on the basis of the VLC *phonology* courses.

3.2.1. The Course

As pointed in section 3.1.1., the VLC phonology course offers several classes:

- Phonology for Students of Linguistics
- Phonology for German Teachers of English
- Phonology for Arabic Teachers of English
- The Phonology of North American English
- etc.

Each of these classes has been designed to meet the requirements of a particular degree program and thus addresses a particular audience: B.A. students in linguistics, students who want to become teachers, students in linguistic M.A. programs. Since all these classes involve at least some elearning units that satisfy the central requirements of multimedia, and allow – at least in part – the reduction of the degree of human assistance, several (at least two) classes can be taught simultaneously, i.e. by one instructor, according to the following principle:

• Content delivery via the VLC

• Additional but reduced in-class teaching by the instructor

The following section outlines the exact structure of such a "Bologna-compatible" scenario.

3.2.2. The Classes

At Marburg University two classes constitute an integral part of the curriculum:

• Class A: Phonology for Students of Linguistics

This class discusses the most important theoretical foundations of phonology using as many languages (from the VLC Language Index) as possible.

• Class B: Phonology for German Teachers of English

This class is meant to introduce German students who want to become teachers of English to approaches and theories within phonology, with special emphasis on English.

Table	1 : T	he i	units	of	eacl	ı c	lass
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Unit	Class A	Class B
1	Basic Segments of Speech	Basic Segments of Speech
2	Suprasegmental Features	Suprasegmental Features
3	Phonetics vs. Phonology	Phonetics vs. Phonology
4	The Phoneme	The Phoneme
5	Phonetic Transcription	Phonetic Transcription
6	Distinctive Features	Comparative Phonology
7	The Sound System of PDE	Regional Varieties of PDE
8	PDE Suprasegmental Phonology	The Sound System of RP
9	PDE Connected Speech	The North American Vowel System
10	Comparative Phonology	PDE Connected Speech
11	Phonological Theories	PDE Suprasegmental Phonology
12	Non-Linear Phonology	The Sound System of German
13	Optimality Theory	PDE vs. German
14	Analysis Task	Analysis Task

Both classes are identical as far as the initial units are concerned but exhibit some differences in their later phases. In table 1 the units which are identical in both classes (Nr. 1 to 5) are marked in italics. Since the classes are offered in a weekly rhythm and should involve as much in-class tuition as possible, the students of both classes will be in the same plenary sessions within the first five weeks.

Concerning the contents of unit 6 both classes are different: Class A involves the theoretical, and relatively complex subject matter "Distinctive Features", whereas Class B has to deal with the self-explanatory and highly multimedial unit "Comparative Phonology". Thus, it seems reasonable that for unit 6 Class A will receive additional in-class tuition and that Class B deals with unit 6 as an online-unit. The reverse situation holds for unit 7: no in-class tuition for Class A (the content is highly multimedial and self-explanatory) but additional in-class tuition for Class B. In units 7 and 8 both classes deal with highly multimedial units that make in-class teaching superfluous. However,

if both classes meet once a week for 45 instead of 90 minutes additional problems and questions, solutions to Worksheets and Practicals can be discussed.

The remaining units of both classes are organized in a similar fashion:

- full in-class tuition where necessary
- reduced in-class tuition as a special offer to the students
- no in-class tuition if the content and the exercises are self-explanatory

Table 2 exhibits the exact dates and times for in-class teaching. Both classes use the same time slot for their in-class phases: Thursday from 11 a.m. to 1 p.m.. This time slot may be simultaneously used by both classes, in which case the instructor has to cope with a large audience, it may be used by one class only, or it may be used by both classes successively. In this case, the instructor must be able to switch from one topic, e.g. "Optimality Theory" (Class A, unit 13) to another: "PDE vs. German" after 45 minutes.

Table 2: In-Class Tuition

Unit	Class A	Class B
26 Oct	ICS 1*	ICS 1
02 Nov	ICS 2	ICS 2
09 Nov	ICS 3	ICS 3
16 Nov	ICS 4	ICS 4
23 Nov	ICS 5	ICS 5
30 Nov	ICS 6	no ICS
07 Dec	no ICS	ICS 6
14 Dec	ICS 7, 11.15-12.00 a.m.	ICS 7, 12.00 – 12.45 p.m.
21 Dec	ICS 8, 11.15-12.00 a.m.	ICS 8, 12.00 – 12.45 p.m.
11 Jan	ICS 9	no ICS (online)
18 Jan	ICS 10 11.1512.00 a.m.	ICS 10 12.00 – 12.45 p.m.
25 Jan	ICS 11 11.15,-12.00 a.m.	ICS 11 12.00 – 12.45 p.m.
02 Feb	no ICS (online)	ICS 12
09 Feb	ICS 13 – 11.15-11.45 a.m.	ICS 13 – 11.45-12.45 p.m.
16 Feb	ICS 14 – in class Test	ICS 14 – in class Test

^{*} In-class sessions (ICS)

This system of serving two groups simultaneously, i.e. a system of reduced blended-learning, still involves a high portion of in-class tuition:

- Class A: 70% instead of 100%
- Class B: 70% instead of 100%

The combination of self-explanatory multimedial e-learning units with additional in-class teaching

allows that "Bologna-compatible" courses designed for particular degree programs can now be taught without further expenditures, and, what is more important, without a loss in quality.

4. Summary

Even though the reduction of in-class teaching is not a desirable option, it is the only reasonable solution to the "Bologna Dilemma". One might argue that the development of the necessary elearning components is enormously time-consuming and expensive. However, since the integration of e-learning is among the goals of modern education anyway, we can utilize its benefits for the Bologna Process.

The VLC solution is a first step towards "Bologna-compatibility" without neglecting the "old" courses of study or increasing the number of staff. The VLC solution is a practical implementation of "E-Bologna".

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