

The three-cycle study system and the qualification framework- new content approaches in German higher education

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*Abstract: This article aims at providing background information on the reforms in German Higher Education in the framework of the Bologna Process. More specifically, it intends to give an overview of the implementation of the two-cycle system of degrees and the qualifications framework for the Higher Education sector in Germany. Firstly, the traditional German system and its main problems will be described. Then, a general background for the introduction of the two-tier system as well as the roles of Bachelor and Master programmes will be depicted. This will be followed by some brief remarks on doctoral studies in Germany. The main part of the article will deal with the qualification framework for German Higher Education, its categories and their sub areas. The article will then conclude with some notes on future challenges and an outlook on possible developments in Germany.*

## I. Introduction

A reform of the degree and study system is currently taking place in Germany in the framework of the Bologna Process. It is probably the largest reform effort that has been undertaken in German Higher Education in recent years. It will result in a complete regeneration of the study system connected with a number of important paradigm shifts. The process which began in the "Alma Mater Studiorum- Universita di Bologna" has already resulted in dramatic changes in German Higher Education (HE) and is generally perceived as irreversible and in many ways unavoidable.

The latest conference of the Ministers of Education of those 45 countries which are officially participating in the process was held in Bergen, Norway, in May 2005. On the agenda were a stocktaking of the implementation status, the passing of a number of documents and recommendations and the prioritisation for the period leading up to the next ministerial summit in London in spring 2007. The ministers passed the European standards and guidelines for quality assurance and the overarching European Qualifications Framework. They took note of the implementation state of the two-cycle structure. It was also decided to avoid the overregulation of doctoral studies. Furthermore they stipulated increased efforts in the continued introduction of the two-tier system and the developments of national qualification frameworks.

Parallel to these developments, the European Commission proposed an all encompassing qualifications framework for the entire educational system of its member states. This proposal is currently being debated. It is against this European background that the following remarks about German Higher Education are to be placed.

## II. The "traditional" German Higher Education system

Traditionally, the German Higher Education system is characterised by two basic features: the binary system of "Universitäten" (universities) and "Fachhochschulen" (universities of applied sciences) and a strong federalism in HE resulting in the main responsibility for the HE system not being with the national government but with the 16 federal states. The role of the federal states is bound to increase even more in the

future, since the ruling government decided to almost entirely decentralise the responsibilities for education.

Within this system, there was a distinction between the universities and the “Fachhochschulen” in terms of the length of studies as well as the main focus of the programmes offered. Traditionally, study programmes at “Fachhochschulen” were shorter and more practice-oriented whereas university programmes were longer and more research-oriented.

In the German system, up to now there has been a one-tiered degree structure with the Diplom as the typical degree in the natural and engineering sciences. Equivalent degree types have been introduced in the humanities and some social sciences (Magister) and other programmes (medicine, dentistry, veterinary medicine, law, teacher education, pharmacy, food chemistry) have traditionally ended with a state examination (Staatsexamen).

The diploma, magister and Staatsexamen programmes have lasted between 4-6.5 years at universities and about 3 to 4 years at “Fachhochschulen”. After graduation the graduates traditionally entered the labour market or proceeded to doctoral studies. The system in itself was very much focused on teaching input in terms of contact hours and content taught. The content was in many subject areas rather traditional and there tended to be a differentiation between the first part of the programmes which mainly comprised theoretical content and the second part which mainly covered applied disciplines and specialisations.

The main weaknesses of the system have been discussed at large and shall therefore be only summarised.

The average study times in Germany have traditionally been rather long (over 6 years on average) and drop-out rates have been high, especially in certain disciplines (social sciences and humanities).

The content was quite regulated by so-called “Rahmensprüfungsordnungen” (framework regulations) which prescribed content and duration of the major disciplines in the one-tier system. These have been perceived as hindering the development of new and innovative curricula, of faculty and institution profiles as well as drastically impede competition within the system. On the other hand, from the student point of view, many of the old programmes lacked structure and clear guidance resulting positively in a large degree of freedom and negatively in disorientation and a lack of clarity and objective of the programmes.

The question of the quality of programmes has been largely unclear since there has not been a tradition of systematic and methodologically sound quality assurance. Lastly, there have been complaints in recent years that course contents do not respond properly to the needs of the labour market, mainly concerning degrees from university type institutions.

Debates about necessary changes and reforms had therefore already started long before the Bologna Declaration. Due to the size of the system and the already mentioned multiplicity of responsibilities of different actors at national and federal level, these discussions have been taking a long time and changes in the system have not been quickly made. It should be stressed however, that the introduction of Bachelor and Master degrees as “pilot projects” had already been possible with the change of the national framework law in 1998, one year prior to the beginning of the Bologna Process.

### III. The two-tier degree system and doctoral studies in Germany

As stressed, the introduction of Bachelor and Master degrees has been possible for some time in terms of the national framework law on Higher Education. In the meantime the law has been adapted and schedules Bachelor and Master as the regular degrees in Germany. Most of the federal states have introduced Bachelor and Master in their own Higher Education legislation and are presently in the process of changing the structure of their programmes.

One of the additional new features of the two-tier system is that the new programmes have to pass a quality assurance mechanism which is the German accreditation system. The system is organised in a way that there is a national accreditation council which accredits agencies who then carry out the actual quality assurance process in the institutions. Currently, there are 6 accredited accreditation agencies in Germany, some of which cover all subject areas and some of which are subject specific. The Council is organised as a foundation.

The standing conference of the ministers of education and culture, the so-called Kultusministerkonferenz (KMK), is the permanent body of the ministries of the 16 federal states that Germany is comprised of. Due to the federal structure, the KMK is the main co-ordinating and regulating body in terms of structural guidelines and regulations for the introduction of Bachelor and Master programmes. The KMK has passed two important documents for the implementation of Bachelor and Master programmes; the so-called framework regulations for the accreditation of Bachelor and Master Programmes and the framework regulation for the introduction of ECTS and the design of study modules. Additionally, KMK has passed a number of detailed regulations for specific questions. The above mentioned documents apply equally to all subject areas, even though there are specific regulations for certain fields (fine arts and music and the state examination programmes) within them. The goal so far however, has been to change all programmes in all subject areas to the two-tier system or compatible structures (as also outlined in the national report of Germany to the Bergen conference). They also equally apply to both universities and Fachhochschulen and both types of institutions can and will offer Bachelor and Master degrees. The formal distinctions between the two types of institutions in terms of programme lengths and degrees awarded have been officially eliminated, since the degree names are also the same for all institutions.

According to these regulations, the Bachelor degree is between 3 and 4 years or 180-240 ECTS duration. It has to be relevant to the labour market and is the initial formal exit point of the HE system. The Master degree is awarded after an additional 1-2 years or 60-120 ECTS of study and offers in-depth specialisation and further studies, not only immediately after the Bachelor degree but also in terms of lifelong learning. A selection of students based on qualitative indicators applying for the second degree is foreseen. Formally, a Bachelor gives access to the Master (in terms of the right to apply for place in a Master programme) and the Master gives access to doctoral studies; qualified Bachelor graduates can immediately be allowed into doctoral studies. For both degrees the introduction of ECTS, including the definition of modules, learning outcomes and competencies acquired, is mandatory.

As a result of these regulations, it is essential to rethink curricula, design new programmes with new approaches in teaching and assessing and to re-orient the programmes towards learning outcomes and student competencies. From the

aforementioned description of the German study system it should be obvious that this is a rather drastic paradigmatic shift.

As to doctoral studies in Germany, German Higher Education institutions and politicians hold that doctoral candidates are both students and early stage researchers. Therefore, the independent and individual research project should remain the core element of the doctorate. This point of view is in line with the Bergen communiqué. There shall be a system with multiple pathways to the PhD, some of which are novelties in the system. In general, doctoral studies within the German system have been fourfold: they could be financed and conducted independently full time or part time by the individual. They could be undertaken with grants from foundations (political parties, churches, companies) or be conducted as part of a (part-time) employment as an assistant in Higher Education institutions. Eventually, structured PhD programmes and graduate schools are evolving in Germany. Even though the number of these grad schools is increasing, they will remain only one of several options to obtain a doctoral degree in Germany.

#### IV. The German Qualification Framework for higher education

The development of a national qualification framework has been one of the areas of work of the national Bologna Follow-Up group in Germany. A working group was installed, comprising the national Ministry and the KMK, the Rectors' Conference, the students' organisation and social partners (employers, trade unions).

The goal was to develop a qualification framework describing the Higher Education system and its degrees in terms of learning outcomes, student competencies and skills as well as formal aspects of a given degree. The qualification framework focused only on the "new" degrees as equivalences between these and the traditional German degrees exist. Thus, the old degrees are indirectly included with university diplomas and their equivalent degrees, all being equal to the Master Degree as well as Fachhochschule degrees being equivalent to Bachelor Degrees. The overall goal is to provide a structure to systematically describe, develop and systematize the relations between different degrees within the higher education system. The qualification framework increases the readability and transparency of the degrees. It provides information to students, employers and the interested public and heightens the transparency of the system for lifelong learning purposes. It can further be used as instrument for quality assurance and accreditation and curriculum design. To this end, the general framework should be supplemented by subject specific descriptors. By focusing on outcomes, competencies and skills the qualification framework strengthens the paradigmatic shift which is inherent to the German Higher Education reforms of the last years. That is, the shift from teacher to student, from teaching input to learning outcomes and from entry requirements and course content to skills acquired and competencies gained.

Formally, the qualification framework has been adopted by the KMK and has additionally been passed by the highest decision making body of the Rectors' Conference. Thus, legitimacy is given by both the ministries in charge of Higher Education in Germany and the German Higher Education institutions themselves.

Within the framework there are two broad categories, named "knowledge and understanding" and "skills". Additionally, formal aspects of the three different degrees within the Higher Education system are given.

“Knowledge and understanding” describes subject specific competencies, i.e. competencies gained with reference to subject specific knowledge acquisition in the chosen field of study.

These competencies are subdivided into two sub-categories, knowledge broadening and knowledge deepening. The first sub-category describes competencies in terms of the capability to horizontally enlarge the knowledge acquired in a given subject area. The second sub-category then describes competencies in terms of the capability to vertically enlarge this knowledge. For each sub-category these competencies are described for Bachelor, Master and doctoral Degrees.

The second broad category describes the capability to apply the knowledge acquired in any given subject area.

It is subdivided into methodological and communicative/social skills. The latter are again subdivided into the aspects instrumental competence, systemic competence and communicative competence.

The formal aspects of the degrees are summarized in Table 1.

As for the two sub-categories of knowledge and understanding, they contain generic and broad level descriptors for each of the three degrees Bachelor, Master and PhD, thus forming a hierarchical structure. For knowledge broadening (i.e. horizontal enlargement) Bachelor graduates have a knowledge and understanding that builds upon the HE entry exam and exceeds this substantially. They have further demonstrated a broad and integrated knowledge and understanding of the scientific foundations of their area of studies.

Master graduates have demonstrated knowledge and understanding that builds upon the Bachelor level and exceeds and deepens this substantially. They are capable of defining and interpreting the specifics, terminologies and schools of the subject of studies.

PhDs have demonstrated a systematic understanding of their area of research as well as the skills and methods used in research in this area. They have additionally gained an encompassing knowledge of the relevant literature in their area of expertise.

In the second subcategory, knowledge deepening (i.e. vertical enlargement) Bachelor graduates are meant to have gained a critical understanding of the most important theories, principles and methods of their study programme. Also, they are able to enlarge their knowledge vertically, horizontally and laterally. Their knowledge and understanding is equivalent to current literature, but some more detailed knowledge should be gained according to the actual state of research in their subject area. Master graduates have gained a level of knowledge and understanding that forms the basis for the development and/or transfer of their own ideas. These ideas can be developed both into a more research-oriented or a more applied direction. They also have a broad, detailed and critical understanding of the most up-to-date level of knowledge in one or more specialised areas at their disposal. PhDs have contributed independently to research by a thesis which enlarges the boundaries of knowledge and has been disputed and reviewed nationally or internationally.

In the skill component, methodological skills encompass all skills which are related to approaching any question in a manner which makes use of the methodology inherent to the field of study which the graduates have completed their studies in.

In terms of instrumental competencies, Bachelors are capable of using their knowledge and understanding with reference to their job or employment and to develop and elaborate problem solutions and arguments. Master graduates are capable of using their knowledge, understanding and problem solving skills also in new and challenging situations which have a broad and multidisciplinary relation to their area of expertise. PhDs are able to independently design and conduct relevant research projects with scientific integrity.

The broad aspect of systemic skills involves a large number of competencies for the three degree types. For Bachelor graduates these are to collect, judge and interpret relevant information, especially within their field of study. Additionally, to use this information by deducting scientifically founded arguments and judgements which take into account societal, scientific and ethical considerations: Lastly to organise further education and lifelong learning in a self-determined and self-regulatory manner. Master graduates are able to integrate knowledge from various sources and handle the complexity attached to this process. They are additionally able to make scientifically grounded judgements on the basis of incomplete or limited information, taking into account societal, scientific and ethical considerations which are stemming from the application of their knowledge. They acquire new skills and knowledge in a self-regulatory way and lastly conduct their own research or applied projects autonomously. Doctoral graduates identify scientific questions without help, conduct a critical analysis and synthesis of new and increasingly complex ideas and advance the societal, scientific, artistic and cultural progress in the knowledge society in both academic and non-academic settings.

In terms of communicative competencies, Bachelors are able to formulate and defend subject-related positions and problem solutions. They are additionally capable of exchanging ideas, information, problems and solutions with both experts and laymen and of taking over responsibilities in a team. Master graduates are able to explain their conclusions and the information and lines of thought on which these are based in a clear and unambiguous way to laymen and experts on the up-to-date level of research. They can further exchange ideas, problems and solutions with both experts and laymen on an advanced scientific level. They are able to take elevated positions in a team. PhDs are able to present knowledge from their area of expertise to a scientific audience, discuss these with colleagues and explain these to laymen. They are able to lead a team.

#### V. Future challenges and further reform issues

This text has outlined both the changes in the degree system in German HE as well as the development of the German qualifications framework. However, despite the reform impetus that has certainly gained in both momentum and pace in recent years, a number of challenges and reform issues remains pertinent.

The paradigmatic shift from input to outcome orientation which is at the heart of the reforms in Germany, continues to be a challenge to the entire system. Many subjects have deeply rooted problems to properly define outcomes and to operationalise them in a way which allows both measurement and decision-making on the basis of this assessment. This challenge is relevant for all disciplines, even though its pronunciation may vary a lot. The nature sciences and engineering disciplines tend to have somewhat less problems than the social sciences and humanities. In the

ongoing debates, the biggest challenges occur in arts and music and those disciplines which have traditionally ended with a Staatsexamen. But as reforms continue, most disciplines slowly, but determinedly find a way to implement outcome definition in their curriculum design.

The second challenge relates to changes within the HE sector in Germany. The traditional binary system with universities and "Fachhochschulen" is changing due to the fact that both types of institutions offer Bachelor and Master programmes now. A new competitive situation has resulted accordingly between institutions and the development of profiles. The traditional roles assigned to both types of institutions are occasionally being questioned. In the long run, it will likely be by the choice of programme offered and the excellence with which the institution renders it which will determine its attractiveness and competitiveness. The type of institution is less likely to play a role in the future compared to the current situation.

Furthermore, the use of the qualifications framework for both curriculum development and quality assurance makes it necessary to break down the broad generic descriptors to subject level and develop subject-specific qualifications frameworks. This development process involves a number of questions to be answered such as the following: Which descriptors are able to clearly define skills, knowledge and competencies in the subject area? Are overarching descriptors as proposed by the national qualifications framework able to encompass subject-specific requirements? How can they possibly be broken down to subject-specific issues so as to adequately describe those? How can overarching criteria be used to define standards for review procedures within quality assurance? These questions need to be answered by each discipline if a usable qualifications framework for that discipline is to result. Some (psychology, social work, informatics) have started these developments and have already proposed concepts which resemble a subject-specific qualifications framework.

German Higher Education is currently undergoing the largest structural reform process in decades. It is a defining character of each process that the only constant variable is constant change. We are convinced that the state that we have reached in Germany is already a huge step forward. Nevertheless, in line with the above quoted we are also aware that further changes are necessary and needed. Thus, the full potential of German Higher Education and its contribution to a European Area of Higher Education and Research can be realised.

**Table 1: Formal aspects of German higher education degrees according to the national qualifications framework for HE**

Level	Bachelor	Master	Doctoral
Time of study	3, 3.5, 4 years	1, 1.5, 2 years	n.a.
ECTS points	180, 210 or 240 ECTS	60, 90 or 120 ECTS	n.a.
Entry requirements	General HE entry exam (Abitur (maturation)), Fachhochschul-entry exam (Fachabitur), specific regulations for qualified applicants with HE Entry exam (Länder specific)	First qualifying degree (at least Bachelor Level), plus additional entry requirements to be decided upon autonomously by higher education institution	Usually building upon a degree of the Master level (i.e. minimum of 300 ECTS)
Degrees	B.A., B.Sc., B.Eng, etc. Diplom (FH), Staatsexamen	M.A., M.Sc., M.Eng., etc. Diplom (Univ.), Magister, Staatsexamen	Dr. Ph.D.
Formal rights after degree	Apply for Master programmes, for highly qualified graduates immediate admission to PhD possible (special exam needed), further education opportunities (LLL)	Application for PhD (for Fachhochschulen sometimes different), further education	

n.a.= not applicable;

N.B. The list of officially allowed degree names at both Bachelor and Master Level can be found in the framework regulations for the accreditation of Bachelor and Master programmes which has been adopted by the KMK.

N.B. Entry requirements for candidates with the general HE entry exam as well as length of study may vary between the 16 federal states.