

How to Internationally Deal with the Intangible Values of our National University Education?

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I want to start with the conclusion of my talk:

- 1. International academic cooperation is a challenge to our national university education.*
- 2. Many of its procedures are not codified and many of its values are intangible.*
- 3. Its processes can not easily be transferred or exported to give the same results elsewhere.*
- 4. We are confronted with the question of what system of higher education will follow in the 21st century, after the European system in the 19th and the United States system in the 20th century.*
- 5. In our internal discussions, I believe, it is necessary to take a global view.*

In recent years we observe increasing activities of international cooperation in education. We can even see the import and export of full university programs across national and cultural borders. Australia's initiatives towards the Asian region may be taken as an example. Efforts of international cooperation and the exchange of knowledge are an academic tradition in research and development for a long time. Now also in teaching and education they are being established. Not that international cooperation in education was completely new. Already in the past there were cases of linkage in education. Some faculties in Afghanistan, for example, in the seventies, were built up and supported by Germany, the United States and by others, like the faculties of science, of engineering, and agriculture in the University of Kabul. But both, the extent to which activities in international cooperation are now emerging and the forms which are being developed for it, are new.

To import excellence and western style education, countries like Korea, Turkey, Egypt, Pakistan and many others, establish strategic cooperation with universities in Western Europe and in the United States. They jointly build new schools for elite education and found centers for cooperation in technology research and innovation. In recent years a large number Bachelor- and Master-programs, leading to a joint or double degree, have been contracted between

partners in different parts of the world. They offer students new opportunities for their qualification. And they mean to mutually acknowledge an equal level of quality at the partner institutions. Programs linking German universities with universities in China are prominent examples. Countries, like Syria or Pakistan, finance national programs to send every year hundreds of their best students to high ranked European universities for a PhD. In other countries universities wish to send their faculty for a teachers training to renowned western universities or they seek for departmental cooperation.

I consider all this a wonderful and healthy development, since it brings people together across political and cultural borders. It helps to gain mutual understanding in an increasingly difficult world. It provides help to those who need it and I also think that it can help us to clear our view on our own ways of education - simply by observing how we are seen by others, from abroad, and in relation to different cultural traditions. And I think that it is worthwhile to seriously consider what others are expecting from us. This is my personal justification for why I take actively part in these international endeavors, with China, Pakistan, Afghanistan, Syria, and also with Algeria, so far. But this is just an individual's opinion about these transcultural interactions. Its humanistic motivation can hardly explain the tremendous efforts it takes for all these cooperation activities to happen. And indeed, there are strong material reasons behind it. So, what we observe are not signs of philanthropy but is something that is better put into economic terms.

We observe a growing international market for higher education products: curricula, study programs, double degree arrangements, joint institutes or even the set up of full universities, to name just a few entries out of the worldwide portfolio of higher education products. For both sides, for those who buy and for those who sell, there are good reasons to deal. At the buyers side there may be problems which arise from a countries demographic development, insufficiencies which affect the quality of a country's education system, lack of opportunities, which hinder students to participate in a countries higher education, and deficiencies which lower a country's political or economic status in the world. And on the sellers side we find interests to help stabilizing a countries economy, to support a countries political and social development, and to establish early links for later cooperation and market opportunities. High level education is generally considered a key factor in a countries wealth and stability. But a closer look at the exchange of products and the sources of their financing makes the strict distinction between sellers and buyers disappear. Business at this market is generally of mutual interest and often creates a win-win situation.

Almost everywhere students are willing to pay for education, except may be in Germany. But the money generated thereby is not enough to cover all costs of a higher education system. Money also has to come from outside. And there is

money in this market. It comes from different sources, as a kind of private, national or international investment. Its sources are private sponsors or public agencies. Money may come from national funds of countries who strive to improve the quality of their higher education, or it may come from international funds, from consortia of donor states, the UNESCO, the World Bank or from one of the many NGO's, who support the development of higher education in developing countries, or contribute to sustainable peace and nation building.

But there was no market of education, if there was no education to offer. Fortunately there are offers. For those who actually produce higher education products, namely the universities, there are financial incentives in this market. Changes in the universities financing, which took place in recent years, force universities to seek for new sources of income, particularly in Germany, where state governments more and more step out of their role as the agencies which fully secure the financial basis of the states higher education. Consequently universities must have an interest to make profit out of their values - values that in most cases are counted as tacit in a university's financial statement and are therefore not mentioned at all. This is true for universities in Germany, I know, but it is certainly also true for universities anywhere else.

Let me give you the example of an extraordinary initiative that was taken by the Islamic Republic of Pakistan. Even so it is unique in its kind it is prototypical in the questions it poses:



Following earlier discussions with the former German Chancellor Schröder, in January 2006, a high ranked delegation from Pakistan visited the German Academic Exchange Service (DAAD) and proposed to jointly set up and run an independent German elite university in engineering and sciences, in Pakistan, for 5 to 10 thousand students, built up from scratch and with the money coming from the Pakistan government. Admission of students should be restricted. It should be controlled by hard entrance tests which give those who pass a close to 100% chance to master their study program with success. Key positions in the

university should be held by German scientists and experts. Education should be according to the best German standards and students should be awarded a German degree or a dual degree, for Bachelor, Master and PhD. Lectures should start in fall 2008.

Germany was not the only country which was approached by the Higher Education Commission (HEC). The initiative included seven more universities, each being set up with another country. Presently the commission (HEC) is in negotiations with Sweden, France, Austria, Italy, Turkey, South Korea and China. The overall project of the “*University of Engineering Science and Technology Pakistan*” (UESTP) plans to spend 2.4 Billion Euro for the next 10 years. The project is accompanied by several other measures for Pakistan to close up to international research, to reduce the brain drain, to pave the road for investment by foreign industry, and to back the development of Pakistan’s national industry. This is not hot air. Due to Pakistan’s cooperation with the United States, following September 11, 2001, the country received substantial financial international support. In 2002 the Higher Education Commission (HEC) was founded. It is lead by the worldwide renowned scientist, the chemist Prof. Atta-ur-Rahman, who acts on the level of a minister. Since this time, Pakistan increased its national budget for higher education by a factor of 15.



The HEC delegation in 2006 carefully explained the background of its mission:

“The world economy is changing as knowledge supplants physical capital as the source of present and future wealth. As knowledge becomes more important, so does higher education. Countries need to educate more of their young people to a higher standard”

the delegation argued; and it continued:

“The quality of knowledge generated within higher education institutions, and its accessibility to the wider economy, is becoming increasingly critical to national competitiveness.

This poses a serious challenge to the developing world. Since 1980s, many national governments and international donors have assigned higher education a relatively low priority. Narrow – and, in fact, misleading – economic analysis has contributed to the view that public investment in universities and colleges brings meager returns compared to investment in primary and secondary schools, and that higher education magnifies income inequality.

It was until off late, that the higher education sector in Pakistan was chronically under-funded, ill motivated and non responsive to market needs. Faculty had generally been under-qualified, lacked motivation and poorly rewarded. Students were poorly taught and curricula were under-developed. Fortunately enough, under auspices of the reforms being carried out in the country, the promise of higher education to promote development has generally, though belatedly, been realized”

the delegation resumed, and then gave figures:

“There has been an increase in the number of students enrolled in universities since independence. In 1947–48 the number of students enrolled in universities was 644; by 1996 the number has jumped to 101.346. The number stands at approx. 405.078 by the end of 2003-04. However, when we look at participating rates for the higher education aged population and compare that to participation rates for the same population age group in developed countries, the situation is quite alarming. The participation rate in higher education in Pakistan is a paltry 4.0 % for the age group 17 to 23 in 2004-06. The participation rate for the same age group in developed countries, as for example Japan, is around 47.7 %. The number stands at approx. 77.6 % for South Korea, 28.2 % in Malaysia and 10.2 % in India. In the case of Pakistan, the problem is one of insufficient access. The number of students reaching university age has been increasing but even the increased number of institutions in the country has been unable to address the issue. As a result there is limited access to higher education and many prospective students who are unable to gain admission are forced to join unrecognized schools or to give up higher education entirely. Government projections indicate that by the year 2005-06, the percentage of the population that will be between the ages of 17 to 23 will be about 14.7 % or 22 million out of 149 million. Merely, maintaining the current low enrolment rate of approx. 4 % requires 880.000 seats in the institutions of higher learning in 2005-06 (which is more than twice as much as enrolment in 2003-04).”

Much of what is explained here, I think, is true for other countries as well. Concerning the rationale of this project, the delegation argued:

“Traditionally, engineering universities in Pakistan have been totally ineffective in incalculating or sustaining a culture of research and development. This is primarily due to the absence of a strong program in the basic sciences at their

campuses, which deprives the engineering universities of core competency and confidence in physics, mathematics, chemistry and even biology. Simultaneously, our general universities have been deprived of the much needed 'technology' content which flows naturally from the presence of engineering capabilities as well as supporting workshops. Both types of universities have thus suffered, and this explains to a large extent the absence of sustained R&D in engineering as well as the sciences in the country.

It is proposed to establish a chain of elite universities in engineering and sciences in the country, which will produce world class engineers and professionals at the undergraduate and the postgraduate levels through an integrated and interactive program in engineering, science and technology, the core sciences and humanities.”

The delegation also explained why it is asking Germany to contribute to this project. It said that Germany has excellent engineers, wealthy industries, and a high standard of education, and that Germany's demographic development is inversely to that of Pakistan. Germany was therefore a natural partner. Not to underestimate these statements, let me say here that Germany's success, which is seen by the delegation, has its basis in a style of education that followed traditions that are more than hundred years old, and is not what we hope to achieve by the present reforms in our educational system. I don't want to report here on the many discussions that the proposal of the delegation initiated, but just mention that DAAD sent a 'fact finding mission' to Pakistan, in May 2006, to learn more about the situation and answer the question if there are unsolvable problems which make immediately clear, that the project is unfeasible. The team of the mission found no such problems and decided for a German university, if it is being set up, to be located in the city of Lahore in the province of Punjab.



With the help of consulting experts DAAD undertook a feasibility study, stepped into a first planning phase and is now setting up the organizational

frame for a consortium of German universities and faculties to join into this project. The key arguments for a German participation in this project have been phrased by DAAD as follows: Germany wants to

“support

- the dialog with the Islamic world,
- the modernization of Pakistan’s higher education system and the creation of an elite with western orientation,
- the presence of German universities at a rapidly growing international market of education,
- the recruiting of highly qualified PhD-Students for German universities,
- the creation of attractive research conditions and environments for German scientists, and
- the creation of a positive climate for investment by German industry with experts educated according to German standards.”

At the end, it is not an unusual thought to run a project, the costs of which are completely covered by a customer. Nevertheless, we have to ask the question if we are really able to execute such a project successfully and set up and run a German elite university of engineering and sciences in Lahore in Pakistan. There is experience in Germany with the export of study programs, double degrees, and PhD programs - experience which is sometimes good but sometimes also bad. But none of these 34 projects worldwide is comparable with the Pakistan project in target, scale and size.



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Even if we don't see principal insurmountable hurdles and everything seems only to depend on the way it is done, the right way, so to say, there are still many obstacles on the road, which have to be removed, and there are still many questions which have not yet been given an answer. One of these obstacles is the difficulty to attract the right people to go to Lahore for research and teaching. The delegation had read in the newspapers that Germany as a consequence to its demographic development, considered the option to reduce the age of retirement of professors from 65 to the age of 60 and accordingly thought it could be attractive for older professors to start a late career. By the way, we expect the converse to happen; we expect the retirement age to go up. And if excellent young people would like to go to Lahore is not obvious at all. Research and teaching in Pakistan for some years are not, may be not yet, a contribution to a scientist's CV which guarantees a splendid academic career afterwards. I have learned in hard lessons that projects of innovation are bound to fail if they require a cultural change beforehand. On the other side, we find ourselves in the middle of a process of change. So, what is the situation we are in? Apart from all these obstacles there are also true risks in this project of a Pakistan German University of Technology in Lahore.But this is just part of the challenge.

It is my observation that only few universities are strong enough and at the same time well enough organized to meet the requirements of a customer like Pakistan. Our German system of higher education as a whole is in fact not prepared to export its excellence in education and sell it as a product at a competitive international market. Prof. Atta-ur-Rahman was definitely right when he opened a meeting with the words: "Pakistan can help Germany to become competitive in the global world". And indeed, our traditions in teaching and education, which we consider a source of what we consider our success, can hardly be exported.

Many of the values in our national style of education are culturally inherited and often intangible in their kind. We don't appreciate if students just do what they are asked to. We leave much to their own initiative, and we don't believe that their ability for excellence can really be measured by tests. We are convinced, in the depth of our hearts, that failure rates during the course of study are a good measure for the generation of excellence. In order to keep the intended level of quality we accept that large numbers of students don't meet our sparsely specified requirements and fail. We see education to be highly contextual and, among other things, much a matter of atmosphere. But these characteristics of our national education do not make good features of a product that is to be sold. Good conditions for success have a lot to do with style, competition, cultural influences, social situations, economic environments, history and tradition, and, most of all, with the right people. How can we think of a product at all if at the same time we don't believe that elite education is some kind of machine, which

has money, equipment and students who have passed an entrance test as its input, and knowledgeable graduates with a high probability of excellence as its output, a machine that has predictable behavior and no losses in-between? Our ways of making students learn and understand is full of idiosyncrasies, we have to admit.

And there are of course other factors of success in our national university education: Particularly at the master's level we suppose learning to be closely linked to research and innovation. Accordingly, we think that good education does not only depend on teachers who are good lecturers. In the university they have to be good researchers as well, or experts in innovation and experimental development. But they can only be good researchers if they are embedded in their scientific community and have a standing in a demanding research environment; and if they are free in a system of values in which unwritten academic rules count and excellence and nothing else. And in the end, our German universities in engineering and science would not be what they are without a strong support from industry. So, what is it that we export? What exactly do the products look like? They are not just blue prints, written regulations, administrative structures or organizational schemata. The products which we are talking about here are processes - processes of education for which money is being paid. What are the guarantees that we can give? How can we be sure that the exported programs and, in the case of Lahore, the exported full university, are equal in style and level of quality – equal to what we expect to be elite in Germany? The Pakistan project has the backing of the German ministry of foreign affairs. The ministry is best familiar with the situation in Pakistan. It urges us to not make any deductions from our home standards of quality. And I think it is right. We can not accept to export any lower quality.

And there are other difficulties: We see differences in the pedagogical socialization of students, in their ability to deal with situations that are underspecified, and in their confidence in their own opinion. Many countries, and among these Pakistan, have a different culture of communication. There are differences in what is seen as knowledge and in the way writing is used. There are differences in the key conceptions of thinking, in the sense to handle abstractions, and in the self-determination as an individual. There are differences in the style of life and in the values of pride and trust. And there are also differences in the use of the words yes and no. Do we know our customer well enough to be able to deal with these differences? We cannot simply invade into the cultural territory of a friend, even if he asked us for help. This is why I think that careful thoughts should be given to a system of higher education in the 21st century, which, by the nature of our times, has to be global - without, I would wish, being imperialistic. Accords do not give the answer.

We finally also have to ask ourselves if it is reasonable at all to sell the sources of our excellence in education to other countries. A company would always try to keep its IPRs, its intellectual property rights, and so are the universities doing these days. Wouldn't we lose the exclusive rights on the intellectual fundament of our economy? But it may also be different: Infrastructure, we know from Information Technology, is an enabler of business, and international standardization and open sources of software have not killed commerce but given it a push. Also in this respect Prof. Atta-ur-Rahman is right: "Pakistan can help Germany to become competitive in the global world".

Concerning the University of Engineering and Science in Lahore, planning and building of a university from scratch is not something which is entirely new. There have been new universities built in recent years, in Germany and in Pakistan. What is different and what is not every day's practice, is the complex structure of the distance involved in this case, distance in space, in knowledge, in political, in social, and in cultural respects. But given the context of a newly built university, for the setting up of a study program it will not be enough to just hire people, create an infrastructure, bring in the equipment and install and run the classes. It will also require building up the industrial network and the research environment in which the education is to be embedded. We can not simply leave this to the time to come. The starting conditions would not be right and the university would develop in the wrong direction. All sides in the project are aware of this and there have already measures been taken to cope with these requirements. I don't want to discuss this here.

Let me at the end of my talk come to the concrete case of the study program in Computer Science. The faculty of Electrical Engineering and Computer Science at TU Berlin has decided to contribute to the project. It offered to set up study programs in electrical engineering and computer science, however under the condition that all costs would be covered, and that a system of quality insurance could be established, which would guarantee an equal level of education in Lahore and in Berlin, thereby justifying the awarding of joint and dual degrees. If these conditions are clear, the faculty said, it will make a final decision. So, the question is how to design and operate quality insurance which is effective to this extent. The following are just thoughts on some general principles and some key quality elements. What is generally true for the project, also applies in the setting up of the study programs

1. We have to understand that all sides involved are stepping into a **learning process** because the products that are to be sold are not prefabricated and in many respects there is no prior experience to rely on.

2. The goals to reach during this process may **not be overloaded** and the models used for implementation must be **simple** and **conventional**. “*We don’t want to be guinnypigs*” Prof. Atta-ur-Rahman phrased it.
3. We must accept that the process will have to make **steps of change**. What is appropriate in the beginning will later often have to be revised.
4. We have to trust in our **ability to react** during the run of the process. It is like driving a bicycle: You can not know in advance precisely how you have to steer to keep the balance after a 10 meters ride from start.
5. Apart from the flexibility which we need in the process, we have to follow a **strict plan** of actions and steps with clear responsibilities, milestones and quality control. Otherwise we will loose orientation.

And specifically for the study program in Computer Science among other things the following will be required:

1. We will have to **transfer** our curriculum and the syllabuses and materials of its courses to Lahore and, at least in the beginning, closely **monitor** their implementation and execution.
2. We will have to make sure that exercises, tests and grades are **comparable**.
3. We will have to help **initiatives for research** and guard the themes and grading of **seminar work** and **theses**.

At least initially this kind of synchronization of the two processes seems to be necessary. We have to learn from it and find the proper ways of a looser coupling which is being established later, with the goal of complete independence if the university in Lahore has stabilized its processes. But it will not be enough to simply parallelize the teaching, it will also be necessary to take the responsibility for the recruiting of staff and for the training of teachers. It will even further be necessary to participate in the universities committees and decision making processes to ensure quick stabilization and to protect the development against deviating from the general goals set for the university in Lahore as a whole and for its computer science department in particular.

It is quite clear, that this procedure will not only affect the development of the department of Computer Science in the German University in Lahore, but will also have a reflection in our own faculty in Berlin. I am convinced that we will thereby improve our standards and become what we always liked to be: “competitive in the global world”.

Let me finish by reading again the conclusion of my talk:

1. *International academic cooperation is a challenge to our national university education.*
2. *Many of its procedures are not codified and many of its values are intangible.*
3. *Its processes can not easily be transferred or exported to give the same results elsewhere.*
4. *We are confronted with the question of what system of higher education will follow in the 21st century after the European system in the 19th and the United States system in the 20th century.*
5. *In our internal discussions, I believe, it is necessary to take a global view.*

Is the Pakistan project a challenge to education in Europe? And aren't there, worldwide, other projects with similar expectations? Europe has developed good structures of cooperation in research. Will it be able to do the same in education? Would European Computer Science here not have a good opportunity to show what it is able to do, to master the difficulties of export to a global market?

Thank you for listening!