

# 16 Knowledge-Exchange between Universities and Business World

Johann GÜNTHER

Jiangnan University, Wuhan, China; State University for Telecommunications, St. Petersburg, Russia; Danube University, Krems, Austria

## 16.1 Introduction

In the middle ages the only education institutes were in hand of the church. Monasteries, mosques and churches had a monopoly in educating young people. Craft training was based on the master apprentice principle. Branches were responsible for the education of their offspring. Mobility is supported by the state to show young people the way into our global world. Since universities are concerned exclusively with the past and with intellectual subjects until the 18th century, today vocational subjects are becoming current again and governments are promoting the cooperation between business and higher education.

New types of universities emerged in the form of Universities of Applied Sciences.

**Keywords:** Higher Education; employability, mobility

## 16.2 Trends in Education Systems

Universities were originally elite and only available to a selected clientele. In Europe the monasteries were exclusively responsible for training. Vocational training was completed by training on the job. Knowledge has been passed on to the next generation by the respective professional group. The learner's gained international experience by working in different countries.

Universities were confined to spiritual science and theology. Up to the eighteenth century their education was only related to the past. This university education was useless for the economy. Many professors in the 20th and 21st century wanted to have nothing to do with an economic contact. It was not state of the art.

The economic representatives began their influence over the education system with the creation of technical colleges and middle schools. An education in secondary education. Only later were they upgraded to "Higher Education".

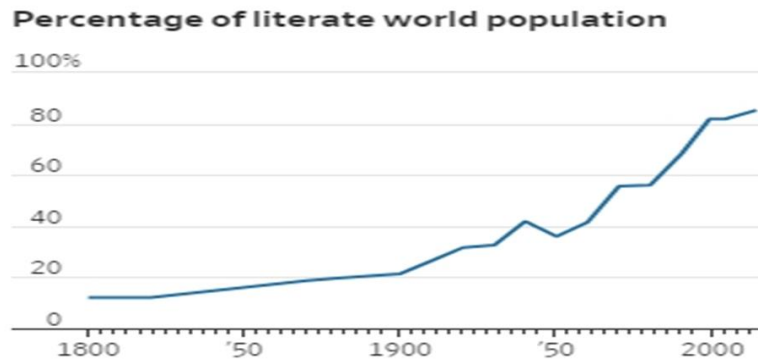
Medicine or veterinary medicine were recognized as academic training only at the beginning of the 20th century. Veterinary medicine was accepted before the human medicine. Similar technical education emerged into technical colleges or universities in the transition from the 19th to the 20th century. They were converted from technical schools.

Economics and science have been separate paths for centuries. An approach came into existence only in the second half of the 20th century and the process is still ongoing.

This cooperation is an enrichment for many professions, an obstacle for others. The economy would like to have university graduates, who are fully trained specialists. Universities see themselves as universal trainers with a long-term effect. For the economy, a short-term horizon with detailed expertise is the ideal. Nowadays we have more people, who can read and write. Especially in the last 200 years the proportion has nearly swapped. „Literacy is a key skill and a key measure of a population's education. In this entry we discuss historical trends, as well as recent developments in literacy. From a historical perspective, literacy levels for the world population have risen drastically in the last couple of centuries. While only 12% of the people in the world could read and write in 1820, today the share has reversed: only 17% of the world population remains illiterate“<sup>93</sup>

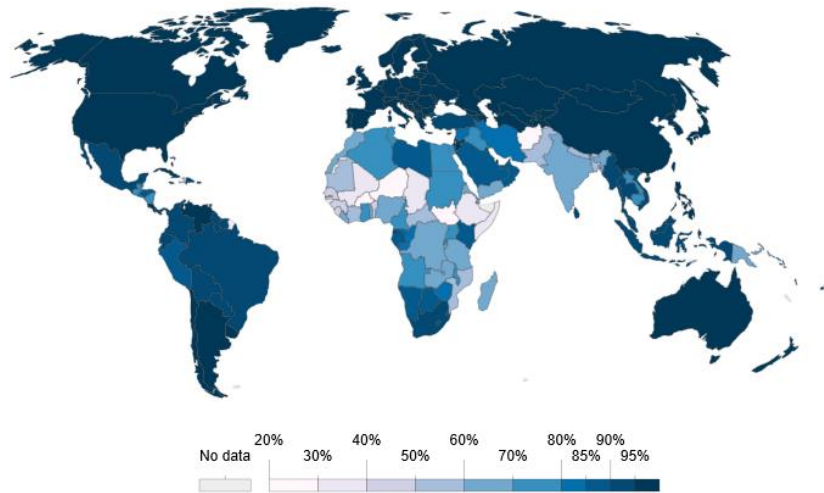
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<sup>93</sup> ROSER, Max; ORTIZ-OSPINA, Esteban: „Literacy“, at <https://ourworldindata.org/literacy>



**Figure 1: Percentage of literate world population**  
 Source: Calculated based on figures from [www.ourworldindata.org](http://www.ourworldindata.org)

The latest data from CIA Facebook is from the year 2011 and shows literacy rate for the entire population by country:



**Figure 2: Source: CIA Factbook (2016), <https://ourworldindata.org/literacy>**

Our world has been global in recent decades. Everywhere in the world the behavior is similar. The global economy sets standards that are the same everywhere. The education system was also adopted. In the liberalism of our time, the economy and economic thinking prevail. Ministers of Education have shaped the concept of employability and want to educate young people that they can be used immediately and without additional training in economic positions. Universities are no longer just the big and free thinkers. They were partly deprived of their freedom and are measured at the output. Their graduates must be able to be quickly transferred to the labor market. Labor ministries issue statistics that show even from which university and which college as many graduates are registered as unemployed. A hit parade of employability arose. First priority was not the mediated knowledge. The important became the employability of young people as workers. Companies are getting more and more jobs. This means that students must be prepared for a future independence. There will be less and fewer employees and more entrepreneurs. Universities are becoming increasingly international and virtual. Cooperations offer opportunities for international studies, as they have never existed before. Competition for educational institutions is no longer in the neighborhood, but worldwide. Indian students enroll in the US and Russians in England.

## 16.3 International Compatibility of Education Systems

In Europe it was the European Union that initiated a rethinking process in the tertiary education system.

"As a Bologna process, a transnational university reform aimed at the creation of a single European Higher Education Area is aimed at harmonizing European courses and diplomas as well as for international students' mobility across Europe. The term refers to a politico-programmatic declaration signed in Bologna by 29 European ministers of education in Bologna in 1999."<sup>94</sup> From the original 29 countries that signed this agreement.

In April 2009, the responsible ministers of education decided in a conference in Leuven to address further issues, one of which is employability.

## 16.4 Employability

Employability is intended to increase the employment opportunities of the graduates through a teaching in the sense of professional relevance and to provide the economy with short-term specialist staff. The employability of university graduates is one of the major objectives of the Bologna process and has already been defined as an objective in the Bologna Declaration 1999: "(...) a clear common goal: to create a European space for higher education employability and mobility of citizens and to increase the international competitiveness of European higher education."<sup>95</sup> "What is the target of universities? Students want a good job at the end of their studies, professors want and must research. Universities get money for their students, but they receive their reputation through research. Research is also important to employers, but more important to them are creative personalities. And politicians want everything at the same time: excellence in research as well as in teaching and further education". The bachelor's degree has brought an approach between university and business. The academic career is initiated with the doctorate degree. Bachelor's and Master's are more business oriented.

In Germany acquired 2014

- 50% a Bachelor's,
- 21% a master degree and only
- 6% doctorate.
- The rest were still "old" diplomas.

## 16.5 Research and Teaching

In many countries, research and teaching have been separated. In the former Yugoslavia universities and colleges were exclusively teaching institutions. Research was located in separate research institutes. Research was frowned upon at universities. They concentrated on teaching and training. The doctrine was very far from practical content.

The advantages were a specialization. The good educators (?) were at the higher education and scientists and researchers in research institutions.

This system was the furthest from the Bologna Agreement and it is likely that at least one generation will need to implement it in Bologna. In principle we must differentiate between

- "Research" and
- "Development".

While research is long-term and successes become visible at a later stage, short-term success in the form of products is necessary in development.

In the tertiary education system a division has crystallized out here:

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<sup>94</sup> <https://de.wikipedia.org/wiki/Bologna-Prozess>, February 20th 2018

<sup>95</sup> Wilfried Schubarth: Beschäftigungsfähigkeit als Bildungsziel an Hochschulen, 2015, <https://www.hrk-nexus.de/aktuelles/news/detailansicht/meldung/aufsatz-beschaefigungsfahigkeit-als-ein-wesentliches-merkmal-der-lehr-und-studienqualitaet-3695/>, January 30th 2018

- traditional universities focus on research, and
- Universities of Applied Sciences on Development.

The focus on economic cooperation in universities of applied sciences is greater than in universities.

## 16.6 Different Types of Universities

### 16.6.1 Marketdriven Training: Universities of Applied Sciences

In the mid-nineties, new Higher Education Institutions were created in Europe: Universities of Applied Sciences. They had a stronger focus on market-oriented education than traditional universities.

The legislation made a clear division:

- Universities should focus on research and teaching.
- Universities of Applied Sciences should focus on business-oriented teaching and development. Experts from the business world were increasingly used as teachers.

Universities of Applied Sciences reflect what the industry needs. The market capitalisation has changed. In the last 10 years the biggest companies had a big change. The 5 biggest organisations are in digital business. „The oil barons have been replaced by the whiz kids of Silicon Valley“<sup>96</sup>



**Figure 3:** Source: „The largest companies by market CAP“, [www.visualcapitalist.com](http://www.visualcapitalist.com), <http://www.visualcapitalist.com/chart-largest-companies-market-cap-15-years/>

### 16.6.2 Special Universities

After the introduction of the Bachelor study, some existing educational institutions were transformed into higher education institutions. This happened in:

- health care (physiotherapy, training of midwives, etc),
- social work,
- military and police academies,
- teacher training institutions and others.

### 16.6.3 Private Universities

In the mid-1990s the first private universities were established in Europe. They were financed by private persons or by public institutions. The national states have created their own regulations for these institutions. Accreditation agencies and quality agencies are two bodies that gave governments control over this new tertiary education system.

<sup>96</sup> DESJARDINS, Jeff: „The Largest Companies by Market Cap Over 15 Years“, 2016  
<http://www.visualcapitalist.com/chart-largest-companies-market-cap-15-years/>

## 16.7 Employability Requirements

Some countries have very specific requirements to give the graduate high professional qualifications.

On the one hand, this is caused by restrictions on admission, and on the other hand, by regulating the offer of studies.

Universities of Applied Sciences have to prove the chances of future graduates in the labor market in order to get a license - an authorization - to carry out a certain study subject.

Continuous reports show how many graduates received a job after graduation and how many are unemployed. An important decision-making criterion for those who will start their studies.

For traditional institutions, changes are more difficult to implement than for new institutions. The already mentioned Universities of Applied Sciences are an example of this. But also countries that have a strong need to catch up can more easily implement these new requirements because they do not have to pay attention to any past systems.

## 16.8 Output Orientation

Closer cooperation between business and the tertiary education system leads to the adoption of economic parameters in universities. One of these is output orientation. The economy is increasingly moving from input orientation to output orientation.

The work performance was measured in time. Workers are paid for their attendance time and not for production. Output-oriented payment means that only the performance that has been provided is paid. Work orders are defined in a target definition and in which time unit this goal is reached is no longer relevant for payment. People who work faster are better paid than slow ones. In the knowledge management sector, smart workers are better paid. Their time effort to meet a particular goal, a defined task, is shorter. There is a similar change in the education system. Teaching performance has been and is defined in semester weeks and in teaching units. The hours which a lecturer will "read" are measured. In Europe, the measurement unit is converted to ECTS - European Transfer Points. They have the purpose not only of the fact that teaching is recognized internationally and that students can also take their acquired lectures to other countries and universities, but that lectures are no longer defined in lecture units but in learning units. An ECT point expresses the amount of time an average student has to spend on acquiring a particular teaching unit. This includes the presence time in a seminar room and the time of the study and the repetition of the teaching material. Four ECTS credits can consist of a one-hour lecture, for which three hours have to be learned. It can also be a four-hour lecture, which does not require any repetition.

Only with the ECTS points can e-learning and distance learning be evaluated. In the field of distance learning, there may be ECTS credits without attendance hours.

## 16.9 Conclusion - Future from the Perspective of Students

For this question, I used my students from the master program "Research and Innovation in Higher Education" at Danube University<sup>97</sup>. Every year a cohort of 19 Students from 14 different countries (Bangladesh, China, Ethiopia, Germany, Indonesia, Korea, Mexico, Moldavia, Russia, Serbia, Turkey, UK, US, Vietnam) starts. They are very high-level-students due to the fact that they were selected out of 400 applications. We can use their answers for the question "How young people see the future of education?". First of all, they categorize education institutes in 3 types:

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<sup>97</sup> <https://www.donau-uni.ac.at/de/studium/marihe/index.php> October 3th 2017

1. traditional state-run institutions,
2. private institutions (both local and foreign institutions) and
3. joint-nation institutions.

Maybe some of their future perspectives are wishes for themselves because they are closer to the future. They will be affected more by the next years than older people like teachers or experts.

They envisage more practical application in education rather than theory. Practical experience will have an impact on theory.

Basically education institutions are more like market-orientated companies, they will compete more with each other to get more students, more funds and more academic fruits.

There will be an increasing number of education institutes and fewer students worldwide.

Technology will be the top priority of education. Every institution will specialize in certain areas.

The role of governments will change. Government will no longer favor only state-run schools.

There will be an increasing competition. The governments will give more autonomy to public schools and they will no longer favor only state-run institutions. Schools will be allowed to have more business cooperation.

Students today envisage professional managers for management positions, such as rectors, deans, etc. Professional managers will have an academic background or outsiders will come from firms. Private funding will play a more active role.

University education is becoming increasingly global and international. A competition is emerging from the three regions of America, Europe and the Far East.

## 16.10 References

CIA Factbook (2016), <https://ourworldindata.org/literacy>

DESJARDINS, Jeff: „The Largest Companies by Market Cap Over 15 Years“, 2016  
<http://www.visualcapitalist.com/chart-largest-companies-market-cap-15-years/>

NN: „Bologna Process“, <https://de.wikipedia.org/wiki/Bologna-Prozess>, Febr. 20 2018

NN: „Percentage of literate world population“, [www.ourworldindata.org](http://www.ourworldindata.org)

SCHUBARTH, Wilfried: „Beschäftigungsfähigkeit als Bildungsziel an Hochschulen, 2015“, <https://www.hrk-nexus.de/aktuelles/news/detailansicht/meldung/aufsatz-beschaefigungsfahigkeit-als-ein-wesentliches-merkmal-der-lehr-und-studienqualitaet-3695/>, January 30th 2018