

GLOBAL PERSPECTIVES

**Comparative views of
the Swiss and US Higher
Education systems with a
focus on the evolving roles
of universities and their
connections with society.**



2013



GLOBAL PERSPECTIVES

2013



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INTRODUCTION

Global Perspectives Programme (GPP)

A US-Swiss Programme for future academic leaders

A partnership between Virginia Tech, in the US and the University of Basel in Switzerland, the Global Perspectives Programme is aimed at preparing future academic leaders for the challenges of an increasingly diverse and globally focused higher education (HE) sector. Through exchange and firsthand experience, GPP offers masters, doctoral and post doctoral students the opportunity for reflective comparison of the two countries' HE sectors and the chance for individuals to develop global competencies and intercultural communications skills.

Global Perspectives Manual

Themes 2013: Universities and Society: Meeting Expectations?

How has the role of the university evolved? In what ways do the universities contribute to society? How does society contribute to the university? The 2013 central theme, *Universities and Society: Meeting expectations*, examined the match between university missions and societal expectations from the multiple perspectives: university, society and student.

Contributions in the form of written reports from both Swiss and US participants have been brought together in this Global Perspectives manual. The publication is a useful resource for those wishing to explore differences and commonalities in academic organisations and practices in these two countries. Participants can elect to report on the year's central theme or select another topic that is of interest to them.

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Erich Thaler

**Head Global Affairs,
University of Basel**

Universities and Society – meeting each other’s expectations?

From Europe’s first university in Bologna to today’s multifaceted challenges of public and private universities the understanding of what one could expect from the other certainly has evolved. Today, universities are more and more seen – at least in the Anglo-Saxon world - as autonomous enterprises who have to compete for their funding and whom state governments, in exchange for the new entrepreneurial liberty, would guarantee a small portion only of their overall budget. Expectations of performance and output generation, though, have risen considerably in all stakeholder groups. Can universities live up to this time and budget pressure, what forms of performances are they pursuing, are demanding stakeholders at the same time not also members of these institutions?

In a series of articles that reflect the experiences and discussions between participants of the Global Perspectives Group 2013 these questions,

among many others, are evoked, problems of organizational development described and consequences of new liberal politics compared in a variety of settings.

I wish you, the reader of our GPP Manual 2013, a pleasant as well as critical lecture and would like to thank all GPP participants for their contributions that will help highlight the importance of Higher Education and underpin its role as a guarantor of societal and individual development.

GPP AT THE UNIVERSITY OF BASEL

Live video link to Virginia Tech during the introductory meeting in March



Group work session at the Joint Seminar in Riva San Vitale



In front of the Graduate School building at Virginia Tech



Learning about 2-year institutions at the New River Community College



Provost Mark McNamee addressing programme participants and alumni at the GPP reception, Virginia Tech



The programme incorporates five components; an input seminar on the HE systems of Switzerland and the US, the hosting of the Virginia Tech delegation in Basel, a joint seminar in Riva San Vitale, Ticino, visits to HE institutions in the US and a conference held at the Swiss Embassy in Washington at the programme's close.

GPP 2013 was the fourth year the programme has run at the University of Basel.

While in the US it is a goal of the programme to visit a broad range of HE institution types. US HE institutions visited by Swiss participants in 2013 included: Northeastern University, MIT, Boston College, University of Virginia, New River Community College, George Mason University and our programme partners, Virginia Tech.

As an mixed-disciplinary programme, GPP enables a vibrant inter-faculty dialogue. In 2013, programme participants represented the Department of Chemistry, the Institute of Exercise and Health Science (ISSW), the Faculty of Law and the *Departement Sprach- und Literaturwissenschaften*.

Find out more about the Global Perspectives Programme on the **Global Affairs website:** www.globalaffairs.unibas.ch/gpp

GPP AT VIRGINIA TECH

Meeting with staff and students of the *Departement Sprach- und Literaturwissenschaften* at the University of Basel



Visiting the *ecole nationale d'administration* and the University of Strasbourg in Strasbourg, France



Sharing graduate school experiences with a PoliMi PhD student



Global Perspectives conference, Swiss embassy, Washington



The Virginia Tech Future Professoriate Global Perspectives program was developed to provide VT graduate students with an opportunity to gain knowledge and understanding of global higher education, especially in Europe. In order to be selected to participate in the summer program, graduate students must have completed two courses taught through the Graduate School: GRAD 5104 Preparing the Future Professoriate and GRAD 5114 Contemporary Pedagogy. After selection for the highly competitive program, participants meet monthly during the spring semester to increase their understanding of higher education in Europe, the Bologna process, and global graduate education and research with a focus on Switzerland and Italy.

The 2013 global experience included visits to selected universities in Switzerland, France and Italy. In addition to these visits, the trip included daily seminars, cultural visits in the region, and a joint seminar with UniBasel participants at VT's facility in Riva San Vitale, Ticino. The experience concluded with the Global Perspectives conference held at the Swiss Embassy in Washington, DC in June.

Further details can be found on the Virginia Tech Graduate School website:
<http://graduateschool.vt.edu/GPP>

or follow the Global Perspectives Switzerland blog at:
<https://blogs.lt.vt.edu/pfpswitzerland/>

Contributions

Global Perspectives on Rewarding Teaching Excellence

Angela Anderson
Virginia Tech

Each of us remembers a specific professor who left a mark on our education. Long after the semester concludes, we remember these professors for their energetic, enthusiastic, and generally excellent teaching. I encountered my memorable professor while taking mammalian physiology during my senior year of college. Her name was Patti. She was cool, hip (she let us call her by her first name), and set high expectations for everyone in the class. In her class we learned a lot from Patti and from books, but we also had hands-on labs. In one of Patti's labs I saw my first fibrillating heart (it was in a rat). Patti always ended each semester with a review session structured like a game of Jeopardy. I am still proud to own my champion t-shirt from Patti's Jeopardy review. Despite my Jeopardy championship, I earned a B in Patti's class. Although not a top mark, I was so proud of that B because I not only worked hard for it, but because I learned more in that semester than I did in most other classes.

Now beginning my own academic career, I have a number of questions as I look back at my experiences in Patti's mammalian physiology course. How did Patti motivate us and leave us with the impression that excellence had taken place? Was it because our end-of-semester evaluations gained her recognition that influenced her career? Was it because she was working toward a reward in teaching? What leads professors like Patti to leave their mark on students? How can higher education motivate other professors to do the same? These are some of the questions that emerged when I began wondering about the structure and success of reward systems for excellence in teaching. When in place, do reward systems actually enhance the educational experience for undergraduates (both domestically in the US and globally)? When discussing this topic it is important to also ask several other questions including: criteria for assessment, who assesses the faculty member, what does the reward

involve, and whether such rewards motivate faculty to provide a better learning experience for undergraduates.

My interest in how rewards for undergraduate teaching change the climate of classroom teaching initially resulted from a luncheon at Virginia Tech with Dr. Per Warfvinge from Lund University (Sweden). Dr. Warfvinge is Professor in Chemical Engineering and Dean of Education of the Faculty of Engineering. In 2001, Lund University formed the Pedagogical Academy within the College of Engineering. It was revised in 2005 after a thorough evaluation of the program.¹ The Pedagogical Academy rewards excellence in teaching with the title of “Excellent Teaching Practitioner (ETP),” a salary raise, as well as a monetary sum to the department. This recognition for teaching excellence is in line with the reward system in place for those given the title of Docent or Senior Researcher.¹ Criteria for the award include a teaching portfolio, an interview, and a letter of recommendation from the department head. Finally, it needs to be evident that the faculty member’s pedagogical practices have been implemented over a period of time and that these practices have been disseminated to others in the academic community.¹ Holding the title of ETP has been invaluable for faculty when going up for promotion. As might be expected, enrollment in pedagogical training at Lund University has escalated.¹ In addition, since the home department receives a monetary award there has been top-down encouragement to participate in this program from department heads.¹ Preliminary research shows that those classes with a professor holding the title of ETP have higher end-of-the-semester evaluation scores.¹ The ETP program seems to encourage excellence in teaching within the classroom.

Another country attempting to make strides towards the recognition of teaching excellence

is the United Kingdom (UK). In 2004, the Higher Education Funding Council for England (HEFCE) established 74 Centers for Excellence in Teaching and Learning (CETL) at institutes of higher education with the vision to recognize excellent teaching practice.² Universities were encouraged to compete for the location of a CETL at their university due to the additional funding and improved recognition status the CETL brought, as well as the individual rewards for faculty that were made available.² Implementation of the CETLs was met with varied degree of success and some universities felt that a monetary reward, which singled out individuals, was incompatible with the culture of the university.² Many CETLs were able to use funding to develop new technologies and explore enhanced pedagogical practices and classroom spaces.² However, it is not clear how the CETLs improved the educational experience for undergraduates in the classroom.

With the success of the ETP program in Sweden and policy changes in the UK, this begs the question as to whether the United States or Continental Europe have made strides towards these endeavors? While the culture of teaching awards in the UK is a rather new initiative, most colleges and universities in the United States have been granting teaching awards for decades. Although criteria for these awards varies widely, more than 50% of 144 teaching awards presented at 85 schools in 33 states are based on a broad statement of excellence in teaching rather than specific characteristics.³ Unlike Lund University, only 12 of the 85 US universities included criteria for scholarship of teaching and only 10 included criteria for professional development in teaching.³ The most common forms of evidence for teaching excellence are a letter of recommendation (92%), followed by student evaluations (61%), a CV (49%), and a statement of teaching philosophy (37%).³ Only 14% asked for a teaching portfolio, while 13% asked for papers or presentations

detailing professional contributions in teaching.³

At Virginia Tech several awards are given yearly to recognize excellence in teaching. Three of these awards include the honor of being inducted into the Academy of Teaching Excellence at Virginia Tech. And one award, the Diggs Teaching Scholars Award, includes a cash award to both the awardee and their respective department. Although Virginia Tech has a thorough program to recognize excellence in teaching, the awards are all based on nominations. Moreover, nominees are not expected to dialogue or have professional contributions to the field of pedagogy. In the United States, teaching awards are frequent and recognize excellence in teaching across many universities. However the question remains as to whether these awards encourage a culture of increased pedagogical practice within universities and if that in turn increases the educational experience amongst undergraduates.

With the opportunity to dialogue directly with continental Europe university administrators, I was able to dig into this question more directly. During GPP 2013, my Virginia Tech colleagues and I visited five universities in Switzerland, one in France, and one in Italy. Different than the US or Lund University in Sweden, the culture of recognizing excellence in teaching was not deemed a priority. However, several of the universities did have such programs in place. Instead of focusing on awards for teaching, the conversation usually found its way back to tenure and whether teaching excellence played a role in faculty members gaining tenure. At Universität Zürich, it was mentioned that teaching excellence is rewarded, but the bulk of the conversation focused on tenure and an explicit rewards system was never mentioned. Universität Zürich did mention the presence of an office to help with teaching, specifically to help faculty members with skills for large classroom settings versus small classroom

settings. At Universität Basel the conversation also focused on tenure and emphasized that excellent teaching is rewarded through the tenure process. For instance, if your research agenda is only ok, one can still earn tenure with excellent teaching. In addition, Universität Basel mentioned that over the past 25 years there have been shifts in the emphasis on teaching due to the Bologna Process. In the 1990s, Universität Basel's faculty focused more on research. Since the Bologna Process there has been a shift towards a focus on teaching. However, in the last couple of years, the shift has moved back towards research as ratings amongst universities has become more important.

Second to tenure, the conversation routinely found its way to sanctions when teaching did not meet expectations. This type of thinking was present at three of the seven universities we visited. At Politecnico di Milano (PoliMi) in Italy, a professor receiving low marks for teaching would be barred from certain professional relationships. This is particularly relevant because professors at PoliMi must ask the university for permission to form these professional relationships to collaborate with or consult with industry. If the professor has scored low teaching marks, PoliMi would likely not grant permission for the professor to engage in this type of relationship, hurting their ability to gain funding or further their research. Université de Strasbourg (France) also had policies in place to address poor teaching rather than excellence in teaching. Although there was not a recognition system in place, Université de Strasbourg highly valued excellence in teaching. This is evident by the university's 800,000€ annual investment in their Center for Pedagogy where they train and otherwise help faculty with their teaching skills. If a faculty member at Université de Strasbourg received low teaching marks for a class taught, they are asked to speak to the Dean and then directed to the Center for Pedagogy for further help and training. Lastly, Scuola universitaria

professionale della Svizzera italiana (SUPSI) in southern Switzerland also did not have rewards for teaching but instead faculty members who received low teaching marks had to make a written statement to the Dean explaining how and why they received such low marks.

Although the other two universities we visited did have programs in place to reward teaching excellence, the rewards and awards were still not emphasized and the greatest emphasis remained on teaching excellence to achieve tenure. At Eidgenössische Technische Hochschule Zürich (ETH) faculty members recognized for teaching excellence received the Golden Owl award. This award recognizes the best teacher in each department and the award is given based on student nominations. The faculty member receives a Golden Owl statue, which they can display in their office and the Golden Owl symbol is placed next to their name in the on-line phonebook. Although there is not a monetary award, the faculty members seem to take a lot of pride in this award. Università della Svizzera italiana (USI) in southern Switzerland also had a teaching excellence award. USI holds a unique community event once a year that recognizes members of the university and shares the culture of the university

with the city of Lugano. Yearly awards are given at this event, including one award that recognizes excellence in teaching. The award rotates between each of the three colleges within USI. The award is also based on student nominations and the awardee receives a substantial monetary reward of 10,000 CHF from a local Swiss bank.

Whether rewards for teaching excellence actually change the experience for undergraduates in the classroom, is still unknown. However what I did learn through research and on-campus visits in continental Europe was that excellence in teaching is still strived for. Whether within the tenure process or just expected of faculty members where sanctions punish poor teaching, excellence in teaching is still a lively topic within higher education. Many universities have a long way to go before they have the same pedagogical emphasis as the Engineering department at Lund University. But for those that strive for excellence in the classroom, they will be rewarded. Whether with tenure, status, or money, excellence in teaching is being recognized. So for those professors that have touched our lives and inspired us to be more than we thought we could be, I anticipate that their hard work will be recognized in some amazing way.

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Translingualism in European Higher Education

Libby Anthony
Virginia Tech

From the time we boarded our flight in Dulles bound for Zürich on May 20 until the flight from Zürich touched down in the U.S. on June 7, my GPP colleagues and I were surrounded by languages other than English. While the majority of us traveling together speak English as our first, primary, and only language, and we conversed in English when we were together, we were immersed in linguistic diversity while walking, traveling on trains and trams, and visiting European institutions of higher education. Switzerland's linguistic landscape is particularly diverse, with German, Swiss German, Italian, and French spoken interchangeably on the streets and in classrooms. And students at the Swiss institutions we visited as well as those at Politecnico di Milano (PoliMi) in Italy and Université de Strasbourg in France seem accustomed to and accepting of this linguistic diversity.

While most U.S. universities use English as the primary and only language of instruction, this “one language” policy is not present at any of the universities we visited in Europe. Some of the schools we visited—such as PoliMi—made it a point to test proficiency in a national language (in this case Italian) for international students who wished to study at their university. But at the same time, in the past decade, the university has worked to increase both the presence of international students and the use of English language on its campus. Plus, Italian students at PoliMi must also undergo an aptitude test in English in order to be admitted to the school. These changes seem to suggest that, while speaking a national language is important at PoliMi, it is also important to embrace the diversity offered by the inclusion of other cultures and languages. Before the internationalizing initiative in 2004, Italian was the only language used in instruction at PoliMi. But now, many MA and PhD classes and programs use English as the language of instruction. This initiative has been met with some resistance, with

some students and educational staff arguing that the use of English instead of Italian detracts from the culture and heritage of the Italian institution. From my perspective, this reaction seems similar to arguments in the U.S. from those who believe that only English should be used as the language of instruction in U.S. higher education. Yet this fails to acknowledge the expanded mindset that cultural and linguistic diversity can bring to higher education. The compromise PoliMi reached in order to include representation of both Italian and English as well as to integrate the Italian and international student communities was to create specific tracks within programs that are either in English or Italian but are not duplicated in both languages. This encourages students to mix with students of different cultural and linguistic backgrounds.

Another non-Swiss institution we visited—Université de Strasbourg—also made a point of stressing that both French and international students should be proficient in French and English because some classes are taught in both languages. Sometimes, classes will even have a mix of both languages, with spoken instruction in French and class materials, such as PowerPoint slides, in English (often because the slides have already been used at international conferences at which English frequently is a common language). Furthermore, some theses at the university are published in French and some are in English, depending on the subject matter.

In Switzerland, linguistic diversity is already woven into the fabric of society, so perhaps it is natural that this linguistic diversity finds its way into university instruction as well. Like Université de Strasbourg, theses at Universität Zürich (UZH) are often published in either German or English, depending on the subject matter. Yet pushback against the use of English does not seem as common as it is at PoliMi. Dr. Yasmine Inauen

noted that the use of English at UZH is just a natural response to the prevalence of English as a lingua franca, or common language.

The shift to English at the graduate level did not occur quite as naturally at Eidgenössische Technische Hochschule Zürich (ETH). At the undergraduate level, German is the most common language of instruction. And, while most graduate programs are now taught in English, there was friction about ten years ago when graduate programs began to embrace English as the language of instruction. According to Anders Hagström, a legal team actually declared the use of English for instruction to be unconstitutional at ETH, but the ETH president at the time decided to make the switch to English anyway, despite the debate. The Bologna Process also caused the administration at the university to shift from the use of monolingual German in university communications to both German and English. Furthermore, according to Prof. Jonathan Home, English tends to be the common language in lab situations because of the number of international teaching staff and students. Similarly, at the Friedrich Miescher Institute for Biomedical Research (FMI), English is also the common language used in both labs as well as publications since, as the FMI scientists noted, English tends to be the language of science.

Thus, through a series of different motivations, multiple languages are used at European universities for a variety of purposes. Multiple languages are used to recruit international faculty and students, to publish research, and to disseminate information in the classroom (languages of instruction). Beyond these academic purposes, different languages are used on a more personal level as students from various countries and linguistic backgrounds come together socially and professionally. There are also varied levels of acceptance regarding the use of multiple languages and debates about which language(s) should have

priority within academia. Yet the fact still remains that all of the schools we visited operate at least bilingually, and many of them are actually multilingual.

I am not, by any means, bilingual or multilingual. However, I was surprised by both how much and how little German I remembered from my high school and college classes when I tried to communicate in the German-speaking areas of Switzerland. The longer we were in the German-speaking areas, the more vocabulary came back to me. Yet I also became frustrated with how little I was able to recall other words and phrases. And as we traveled from the German-speaking areas to the French and to the Italian, I found it difficult to keep up with the language(s) I should be using to say “hello,” and “thank you.” I used many a “danke” in Ticino and “grazie” in Zürich. Trying to imagine taking classes in multiple languages is both a scary and thrilling concept, yet it is one that many European students confront on a daily basis.

Recently, scholars in the field of Rhetoric and Composition have begun to shift away from the terms *bilingual* and *multilingual* and have instead started to use the term *translingual*, which, instead of focusing on the act of *using* multiple languages, emphasizes the *attitude* one takes toward linguistic diversity. A translingual approach toward language always acknowledges what is gained and lost by making linguistic choices among the languages, registers and dialects available in communicative acts. That is, translingualism encourages us to push against the hegemony of monolingual education and to emphasize the movement across and through languages and language barriers in our teaching and in our own writing and research.

When we arrived back in Washington DC on June 7, we were once again in English language territory, and I understood the majority of the words spoken to me rather than only understanding a few. I was

both relieved to be able to communicate clearly and also a little sad, as though something was lost when I no longer had to put in as much effort to understand the language. Being in a linguistically diverse environment had forced me to really listen to what was going on around me, and I hope I can bring those listening skills into my research, my classroom, and my life experiences in the future. Our visit with effortlessly translingual scholars abroad has made me want to reconnect with the latent German hiding in a wrinkle of my brain, and I feel more committed than ever to my study of international students in U.S. writing classrooms.

A tramp abroad? A glance at the impact of globalization of education on foreign students in universities in France, Switzerland, and Italy

Sreyoshi Bhaduri
Virginia Tech

“He is now ready for business—or play, as he shall prefer”

Mark Twain, referring to German students

Abstract - the notion of traversing far and wide, across seas and across borders in pursuit of education is not new. In fact, every explorer in the pages of history, Columbus, Marco Polo, etc. were also students in their own right, who imported knowledge that made his parent nation richer many times more than their material treasures. The world today too sees a large percent of students choosing to step outside their motherland in their quest for knowledge, academics, research and opportunities. This paper focuses the impact of internationalization of education in Europe, education in Europe. Findings and discussion are based primarily on the author’s observations of and interactions with students and faculty in Switzerland, France, and Italy during the 2013 Global Perspectives Program.

Keywords - globalization; international; mobility; higher- education; Bologna Process

Introduction

The Global Perspectives Program 2013 was centered on the theme, “University and Society: Meeting Expectations.” In an era of globalization, wherein Chinese goods are more easily available in USA and “made in Canada” tags find themselves in stores of remote parts of India, internationalization of goods is an inevitable and inescapable phenomenon engulfing us.

In this rat race for globalization, education and hence internationalization of specific schools of higher education is a concept that is quickly making its way to the top of priority lists of educationalists and academic policy makers worldwide. So, is internationalizing itself to meet requirements of a global society an expectation of society from universities? If so, what are the pay offs and the tradeoffs? Given this momentum, it is important to understand if and how society expects

higher education to internationalize in effort to meet the changing demands of a global society.

How many students participate and benefit from the educational reforms and policies to include a more diverse classroom? What role did the Bologna Process play in mobility of students in Europe? Who are the stakeholders and what roles do they play in influencing global education? What are global standards and what are the challenges and criticisms for the process? This paper seeks to answer a few of these questions.

The paper is essentially divided into four main segments:

The first deals with definitions of terms and hence gives a broad idea of the concepts that form the focus of our discussions further. It provides the current statistics for foreign education and introduces the Bologna Accord.

The second gives an overview of the challenges and the criticisms of the internationalization process, keeping in mind the necessity for the same.

The third, is based on observations and interactions that the author had, with students and academicians at the various institutions visited. It also looks into a few comparisons and contrasts of the European schools with regards their American counterparts.

The final segment discusses the conclusions formulated and the inferences drawn.

I. FOREIGN, GLOBAL AND INTERNATIONAL: DEFINITION OF TERM AND PERSPECTIVES

Internationalism and globalization can be understood as different from each other, with the latter not having the concept of boundaries or

borders. According to Teichler³ “*Internationalism can be defined as cross border activities amidst presence of borders, globalization refers to similar activities concurrent to an erosion of borders.*” The earliest instances of contemporary attempts at internationalization of education in Europe began in 1987 with the creation of the European Community Action Scheme for the Mobility of University Students (ERASMUS) Programme. It was through the auspices of this program that students could gain mobility through universities across Europe, even for a short or temporary while.

A. Inspiration for Research Topic

As a foreign student, pursuing graduate studies in the United States, the author was interested in knowing more about the life of her counterparts across the pond. The similarities and the contrasts of international student life in the European continent made for interesting research. In order to appreciate the European system of higher ed, it was necessary to peep deeper into the necessity for the existence of universities in Europe, in the first place.

As opposed to the American idea of universities as the gateway to higher and better quality of life, admission into and graduation out of an institution of higher education in Europe was not seen to be a necessity for an individual to attain quality in standard of living. Hence, individuals in Europe who pursued academics did so not merely to “get a job” but also to “get an education.” In such a scenario, the learning process, historically was more catered towards individuals who were self-motivated and self-driven, rather than having an entire board to look after the students learning curve. The admission process was thus, especially for graduate level education, more free, flexible, and involved very little documentation.

An excerpt from Twain's work, *A Tramp Abroad*¹ sees German students described in the following fashion:

“One sees so many students abroad at all hours that he presently begins to wonder if they ever have any working-hours. Some of them have, some of them haven't. Each can choose for himself whether he will work or play; for German university life is a very free life; it seems to have no restraints.

The student does not live in the college buildings, but hires his own lodgings, in any locality he prefers, and he takes his meals when and where he pleases. He goes to bed when it suits him, and does not get up at all unless he wants to. He is not entered at the university for any particular length of time; so he is likely to change about. He passes no examinations upon entering college. He merely pays a trifling fee of five or ten dollars, receives a card entitling him to the privileges of the university, and that is the end of it. He is now ready for business—or play, as he shall prefer.....

It would be a mistake to suppose that the easy-going pleasure-seeking student carries an empty head. Just the contrary. He has spent nine years in the gymnasium, under a system that allowed him no freedom, but vigorously compelled him to work like a slave. Consequently, he has left the gymnasium with an education which is so extensive and complete, that the most a university can do for it is to perfect some of its profounder specialties.”

Indeed, even a century and a half after Twain published his observations, a trip to the universities of Europe reveals a similar narrative with regard to student life. Two important characteristics of European education that can be drawn from the excerpt and can also be observed firsthand at universities in Europe are:

- The independence accorded to the students with regards learning and conduct; and

- The lack of a campus life, as opposed to a thriving one in the US.

A foreign student, upon taking admission at a university of his/her choice, then faces a scenario wherein the learning is independent and no longer spoon-fed, as may have been in the country of his/her origin. The community too is more actively a part of the students' life, than the university. The universities of Europe were built with the sole purpose of educating. The historical universities were abodes of learning and knowledge gathering; education, holistic development and character building could be seen to be more of a societal or a self-regulatory act, rather than universal responsibility.

B. Demographics and statistics in present day

What constitutes the term “foreign”? Who is a foreign student? The UNESCO Institute of Statistics defines the term foreign students as those who, “*have crossed a national or territorial border for the purposes of education and are now enrolled outside their country of origin*”¹. The study goes on to report that the number of globally mobile students rose to a staggering 3.4 million in 2009, from 2.1 million in 2002. Thus, there can be found to be a significant rise in the number of students who are leaving their nations to pursue education offshores.

Figure1 given below gives an indication of the increasing numbers of international student enrolment across the globe during the past decade.

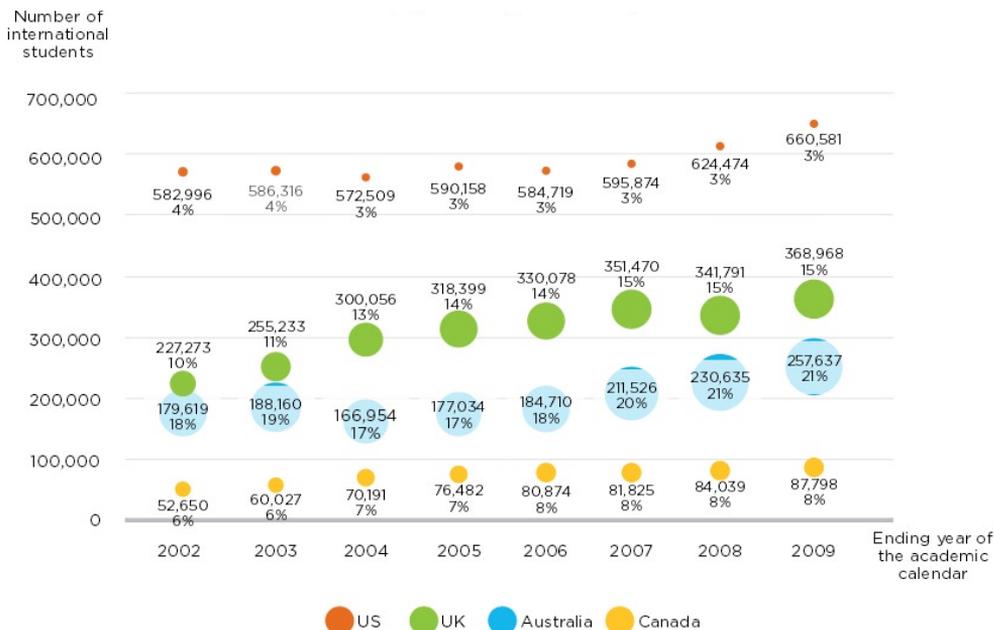


Figure 1: Number and Percentage of International Students in Total Enrollment, by Hosting Countries, 2002- 2009 ²

C. Bologna Process and the snowballing effect

The Bologna Accord came into being in 1999 with the signing of the Bologna declaration by ministers from 29 European countries. So named for the Italian city that hosted the 1999 meeting, the Bologna Process. The Bologna process brought with it a number of modifications in the structure and functioning of higher ed in Europe. It advocates mobility and helped spearhead other initiatives.

The Aarhus Declaration of 2012 ⁴ brought with it similar criteria for adoption. In particular, with regards international education, the action strategy declares, one of its motives as: “A clear internationalization strategy: enhancing collaboration, partnership and presence both within Europe and at global level is of particular importance in attracting and retaining talented

individuals, in promoting a more international outlook among students and staff alike, and in promoting active solidarity and cooperation”

Policy makers have rightly identified the need for the universities to be more accessible to international students, thus building global connections. From the Erasmus Scheme to the Aarhus Declaration, globalization of education in Europe, has indeed come a far way.

II. INTERNATIONALIZATION: NEEDS AND CHALLENGES

The Aarhus Declaration realizes the need for globalization and states it as: “Higher education and research hold the key to the future. The world is facing unprecedented global challenges. These grand societal challenges, be it climate change,

energy consumption, sustainability or combating poverty, affect all aspects of our lives and are not contained by geographical borders or specific scientific disciplines.

They require urgent attention, and European universities, working within a global research community, have a crucial role to play in addressing these challenges through their contribution to new knowledge, and to educating talented individuals to be creative and search for innovative solutions.”

Thus, it can be seen that the university rightly agrees to meet up to a global societal expectation at the various levels through collaboration and cooperation internationally. The need of the hour is thus to incorporate a multitude of opinions and perspectives within inclusive and diverse classrooms.

A. Language and traditions

The internationalization of education and the influx of foreign students can pose certain challenges, which need to be dealt with effectively. While, traditional language of instruction, might be German, for instance in certain Swiss classrooms, attempting to conduct classes with foreign students and retaining the medium of instruction could be challenging. At the same time, the professors are well versed in a given language and could find adapting to a secondary language, such as English, difficult. Most universities, in the present day, have adopted a bilingual medium of instruction.

The undergraduate classes continuing as before, in the primary medium of instruction, while the graduate level classrooms, which seem to attract more foreign students, have shifted to the globally accepted language of English. These shifts have been criticized by the members of the old-schoolers as being nontraditional and not in

keeping with the university’s responsibility to the majority stake holders, i.e. the citizens of its own nation. Thus, there are quite a few hurdles that would need to be crossed in order to achieve true globalization of classrooms across the world.

B. Revenue generation and global exposure

While on one hand, the criticisms and challenges can be seen to be deterrents to the idea of university meeting societal expectations. On the other hand, globalization brings in revenue and exposure. Small towns and hamlets start being recognized globally due to the influx of the international students. More students generate more income for the university’s local and regional economy. Thus, students help drive economic growth and benefit residents and governments alike. The increased fees for the international students, which have been adopted in certain universities also brings in more money for research and training. The advantages of opening doors to new students from diverse parts of the world, thus has its positives too.

III. STUDENT PERSPECTIVES: SOME OBSERVATIONS

Observations during campus visits provided the author with valuable insight into various scenarios at universities in Switzerland, France, and Italy.

A. Switzerland, France, Italy

University of Zurich expressed figures identified close to 40% of its enrolments as international. In this context, it is important to note that International would be by definition, cross border. However, a German student studying at a Swiss German institution would still feel pretty much at home within the system. Thus, unlike in US universities wherein specific administrative offices look into student affairs catering to their adjustments and relocations, similar mobility offices in the European

counterparts can seem to be redundant.

B. *Technical v/s non-technical schools*

The author was able to sense a stark difference in the number of international enrolments in technical fields of science and engineering, rather than non-technical fields. The technical universities visited, such as ETH, Polimi and SUPSI were also more streamlined towards attracting non-European international students. In fact, Dr. Anders Hagstrom, at ETH, specifically spoke about the bi-lingual method of instruction aimed at attracting foreign students who were unfamiliar with the language.

IV. CONCLUSION

The definition of foreign in the European context, with countries located closer and at shorter distances, seemed to have aided a sort of limited globalization within the EU. Proximity of the university to borders was seen to determine the influx of ‘foreign students’. For instance, SUPSI and USI which were two Swiss schools near the

talian border had a large percentage of its ‘foreign enrolments’ as Italians, who took the hour-long train to commute to and from their country. In this regard, the mobility and internationalization that has been spoken about is restricted and segmented to the EU. Whether or not this can be seen as a step towards a global future for education remains to be seen.

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The Bologna Process is a revolutionary educational endeavor taken on by many of European countries to increase mobility and comparability. The Sorbonne Declaration laid the foundation for the Bologna Declaration, which was signed by more than 30 ministries in 1999 (Wächter, 2004). The aims of the Bologna Process include employability, attractiveness, competitiveness, and greater comparability.

As discussed during the Global Perspectives Program, European students experienced difficulty traveling or transferring between universities because learning objectives and experiences varied drastically across institutions and academic departments. For example, an engineering degree from a university in Italy would not necessarily be comparable to the same degree earned from a university in Germany. For this same reason, transferring credits between universities was problematic. With these difficulties in mind, a majority of European countries decided to change their educational systems to attract more students, to create consistency within academic degrees, and to increase employability. Higher education is recognized as an international commodity (Hodson & Thomas, 2001), the Bologna Process is an attempt to standardize the quality and qualifications of that commodity.

With the Bologna Process, universities moved from a 4-5 system to a 3-2-3 system also known as a three-tiered degree structure (Keeling, 2006). This structural shift mirrors the structure found in the US higher education system. The Bologna Process is an example of many European countries taking unified action in response to trends in global higher education (Adelman, 2009).

Language is another significant component of the Bologna Process. The desire to increase

student mobility has complicated the traditional use of native languages within universities. In an effort to increase international recognition and competitiveness English titles and language are now used regularly in European higher education (Kehm & Teichler, 2006).

The need for comparability amongst academic programs has led to an increased need for assessment and evaluation. As universities gain a better understanding of their degree programs through quality assurance, results can be used to increase compatibility across institutions and programs. Universities are evaluated through an international review and recommendations are made about research. Academic programs and universities are internationally ranked as a result of these reviews. Such reviews can be closely tied to the funding that universities receive from the canton (state) and federal government.

A Synthesis of Observations

From my experiences at seven universities across Switzerland, France, and Italy, I have learned a great deal about the Bologna Process from the professionals and professors who are implementing these reforms. The findings and underlying themes of this report are based on my experiences, observations, and knowledge attained through the Global Perspectives Program.

During a presentation at Universität Zürich in Switzerland, I learned that the university had, for the first time, received a prestigious ranking. However, the presenter was quick to point out that this information was not of particular importance to the university. The university representatives shared with us that the rankings are mostly for media and headlines. Other university representatives at Universität Zürich echoed this description of university rankings. It seems as though stakeholders in higher education were

already aware of the specific strengths of each university and recent rankings had little impact on perceptions of quality within the academic community. This disposition also reflects a difference between European and American educational systems. While rankings hold little clout within the European academic community, many universities in the United States invest large amounts of time and resources into marketing their school's ranking in an effort to recruit prospective students.

It was also revealed to us at Universität Zürich that the "old system" (before the Bologna Process) had fewer opportunities for student evaluation. With the new system in place, students must be evaluated during each module via test, quiz, lab, assignment, report, etc. Representatives from Universität Basel also spoke about the old and the new systems for graduate education. More credit hours were required of students in the new system than the previous. Additionally, PhD programs are being formed within Universität Basel to better manage the graduate process and students. Many of these changes reflect common practices in the US education system. These examples attest to the efforts put forth as a result of the Bologna Process and the desire to remain internationally competitive and comparable.

At Eidgenössische Technische Hochschule (ETH) in Switzerland I learned that the university is not accredited; however, the quality assurance office is accredited. Anders Hagström (Director of Global Educational Affairs at ETH) explained that each department undergoes an international review every seven years. This review currently evaluates research initiatives at ETH but future evaluations will also include education. Many of the other universities that we visited also mentioned having similar external reviews. Some of the evaluations are connected to university funding and contracts. University representatives discussed external

evaluations; however, internal evaluations initiated by the university were not mentioned during our visits.

At ETH Hagström also spoke exclusively about the Bologna Process and described it as complex. Graduate courses are taught in English and ETH has largely become a bilingual institution. As a result of this, classes are very heterogeneous with students from diverse backgrounds. He also mentioned that the move to become bilingual caused many administrative changes and challenges. From my observations, ETH seemed to be making the greatest commitment and investment in this initiative.

Offering graduate courses in English is a goal that many of the universities we visited are actively working to achieve. Fulfilling this initiative means that textbooks need to be in English, the institution's native language, as well as other languages. Professors of the graduate courses also need to be proficient in English. This requirement affects current faculty members and the hiring of future faculty members. Although English is often perceived as the de facto language of instruction for graduate education at ETH, as we learned in our program, one professor asks his graduate students if they prefer him to teach the course in broken English or fluent German. Through discussions with Virginia Tech GPP participants, Universität Basel GPP participants, and students we met with throughout our university visits, I learned that, while the professors might be teaching graduate courses in English, the teaching and lab assistants might not be able to. The ripple effect of this initiative is evident from the testimonies shared by the individuals we met.

President Alain Beretz as well as other university representatives from the Université de Strasbourg in France spoke with us about the increased pressures of accountability from stakeholders. As funding

from the state and the country has decreased over the years, the university has focused on quality assurance and making improvements to the quality of research produced. Many of the universities that we visited discussed an increasing need for the evaluation of their education systems and their research for purposes of comparability.

Concluding remarks

After spending time with administrative professionals, professors, graduate and undergraduate students, I was better able to understand the magnitude and impact of the Bologna Declaration on the European education system. I was amazed by the efforts that universities are taking to meet the goals set by this process. After hearing about the “old system,” it is clear to me that creating PhD programs, increasing credit hour requirements, offering graduate courses in English, and altering the education structure is something bigger than change. It's revolutionary. Many of the initiatives set forth by the Bologna Process reflect common educational practices in the US. I was immensely impressed by the speed of change taking place around these goals in the traditionally slow-to-change higher education system. I was also inspired by the drive to create a university that meets the needs of students both today and tomorrow. As the Bologna Process transforms many European universities it will be interesting to see how the United States responds to the need to modernize higher education in an effort to meet the needs of future generations and international students.

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The MOOC Movement: An Impetus for Global Academic Evolution

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Recently, Massive Open Online Courses (MOOCs) introduced a new paradigm for higher education. When comparing the MOOC model with contemporary American and Swiss higher education, new opportunities and challenges arise. Moreover, contrasting MOOCs with traditional education from either country also exposes unique strengths and weaknesses of conventional education. While MOOCs have stirred controversy with a mix of praise and criticism, they demonstrate the potential to change the face of education as a *disruptive technology*. By examining MOOCs' educational model and considering findings from its early adoption, the global narrative on education must reflect new insights in academic accessibility, pedagogy, and the evolving roles of students and teachers alike.

Academic Accessibility

With the increasing ubiquity of internet access, online technology has great potential for improving accessibility to higher education. First, strictly online courses eliminate limitations associated with travelling to physical classrooms. Consequently, the cost of relocating to a distant campus is no longer a primary concern. Likewise, with an online learning system, physically handicapped students only need computer access to attend class. Students of all types could benefit from opportunities to learn from the elite teachers in different fields from various universities across the globe. By gaining access to the best teachers from an array of elite universities, students would no longer be limited to learning only from the strengths of one university.

Secondly, higher education is often either cost prohibitive or leaves students with substantial debt burden from loans. The weight of paying back student loans is a particular concern to students of American universities where tuition fees are particularly expensive. Even in Switzerland and

other countries where tuition is considerably less than American universities, MOOCs have a distinct advantage. With no enrollment costs, MOOCs provide access to higher education for students with limited financial resources. Given that higher education is a reliable route for upward economic mobility, the poor stand to benefit greatly from free education.

In addition to eliminating tuition, MOOCs offer unrestricted enrollment: neither applications nor admissions tests are necessary. In bypassing the admissions process and offering true open enrollment, MOOCs also circumvent barriers to educational access and promote social equality. Ethnic minorities, first-generation students, and other underrepresented groups are historically disadvantaged in traditional admissions processes without privileges of preparatory classes, legacy admissions, and other special guidance. Conversely, without an admissions process, everyone with internet access – regardless of social status – has equal access to MOOCs.

Nevertheless, preliminary reports do not suggest that free enrollment and open access to MOOCs have improved educational access to underrepresented populations. Currently, there are no comprehensive MOOC demographic reports. However, in a Machine Learning MOOC, of about 14,000 students (of 104,000 enrolled) who responded to a demographic survey, half were already employed in a related field ². While almost a third of respondents were already undergraduate or graduate students, only 3.5% were unemployed, and 2.5% were employed in an unrelated field. The survey did not report personal income data. Nearly 70% of responders explained that their motivation to enroll in the course was that they were either “just curious about the topic” or they wanted to “sharpen the skills” at their current jobs. In a similar survey for a Circuits & Electronics MOOC,

almost 80 percent of respondents already had experience to advanced math courses including differential equations and only 4 percent reported *not* having previously taken calculus ³.

From these preliminary reports, it appears the vast majority of those taking advantage of MOOCs already have access to higher education. Granted, these MOOCs are often affiliated with prestigious institutions such as Stanford University, Massachusetts Institute of Technology (MIT), and Harvard University. Still though, it is important to point out that the respondents who took the aforementioned MOOCs while already having degrees—or at least exposure to higher education—may not have otherwise had the opportunity to learn from professors from these exclusive universities. Likewise, MOOCs attract a global audience (from nearly every country, as *Coursera* claims ⁷) who do not have easy access to the (primarily American) universities who sponsor the courses. However, those without the means to higher education are those who would benefit the most from MOOC accessibility. Unfortunately, there are no indicators to suggest that these underrepresented audiences are taking advantage of MOOCs. Without comprehensive studies, we cannot make firm explanations for the low enrollment of those who are unemployed or lack higher education.

However, currently the return on investment for MOOCs may not be substantial enough to attract potential students who lack university education. A primary problem is that MOOCs do not currently offer accredited Bachelor’s degrees. Additionally, students cannot count on most accredited degrees to accept credit for MOOC completion. Consequently, most of the current value in taking a MOOC is to fulfill a desire to learn. Investing time and effort to complete a MOOC and learn for the sake of learning naturally attracts those who

have the privilege of leisure time. To the contrary, people without higher education tend to have lower-wage jobs, often have to hold more than one job, and are more likely to be single parents and have other obligations that limit their free time¹. Consequently, those who could benefit the most from free, online education do not have the luxury of excess time to explore their intellectual interests when they bear the burden of more immediate obligations. In order for MOOCs to reach this audience more effectively, it is vital to offer tangible benefits for completing MOOCs that will help them improve their resumes and compete for desirable occupations. Instead, as they currently stand, MOOCs better serve the highly-educated who seek continuing their education.

When asked about MOOCs, several high-ranking administrators at European universities explained that they did not feel threatened by MOOCs. Since these universities boasted relatively low financial burden for enrollment, MOOCs do not offer as great a financial contrast as do American universities. Nevertheless, a perspective of MOOCs and traditional universities as mutually exclusive (and competing) bodies may be shortsighted. Since MOOCs often share affiliations with universities, it may be commonplace for universities to integrate MOOCs (or variations thereof) as services to *supplement* classroom-based learning environments rather than *replacing* them. In that case, non-profit institutions should not consider MOOCs a potential threat, as they would instead provide a competitive service to for-profit online universities such as University of Phoenix. In addition, MOOCs' quick and global access offers a novel approach to the Bologna Accord's goal to improve mobility between universities. If MOOCs gain enough academic credibility to earn credit toward a degree reliably, students could take courses taught by professors at different universities, and maintain progress toward a

degree regardless of their institutional enrollment. From this approach, students could benefit from mobility without leaving their computers.

Consequently, both MOOCs and higher education institutions should learn that free and open access by itself does not necessarily improve accessibility to those most in need. Time and effort are particularly valuable to those without access to higher education. Therefore, demonstrating significant return on investment is vital. However, universities have the opportunity to take advantage of MOOCs' advantages of increasing mobility and global reach.

Pedagogy

Université de Strasbourg President Alain Beretz declared, "Technology by itself does not make a good course." Instead, leveraging technology should serve a pedagogical need to foster learning. Introducing new technology in courses for the sake of using technology does not serve an instrumental role in learning. While MOOCs have potential for improving academic accessibility, there are pressing concerns about the quality of education provided by a MOOC. Since MOOCs rely on pre-recorded multimedia lecturers, students lose the ability to interact immediately with the professor. Instead, the responsibility of offering assistance is delegated mostly to peers also taking the course through online message boards. While peer interaction can be beneficial, it is not likely to replace the interaction with an expert professor with teaching experience.

Learning science and contemporary pedagogies suggest that active learning through classroom exercises, hands-on problem solving, and group discussions tend to foster improved cognition when compared to passively watching a presentation or lecture. However, since MOOC lectures are delivered through non-interactive video, they do

not offer the rich learning experiences of an active learning classroom. Passive learning *sage on the stage* teaching style may still be commonplace in universities, particularly in Europe. However, as the popularity of active learning pedagogy spreads for in-classroom settings, there is a distinct need for MOOCs to better support active learning.

The persistent availability of lesson videos is a distinct convenience that allows MOOC students to watch videos at times that best suit their schedules. Likewise, the scalability of MOOCs to support thousands of students is impractical to replicate in traditional classrooms. However, both of these unique characteristics also introduce considerable challenges, particularly for student assessment. Without the support of comparably large teams for grading, it is unrealistic to expect MOOC instructors to grade thousands of exams and assignments manually. Instead, MOOCs rely heavily on two instruments for evaluation: multiple-choice exams and peer-evaluation.

Automated grading systems can evaluate multiple-choice exams to support massive course enrollment. However, multiple-choice exams are limited with respect to how well they evaluate Higher-Order Thinking Skills. Some automated grading systems address grading essays or other complex free-response assignments, but they are still not widespread across disciplines. On the other hand, peer-evaluation provides students with practice at reflecting and evaluating others' work, which can require meaningful cognition. However, without external accountability for the accuracy and thoroughness of peer-evaluations, students may often succumb to pressures to rate their peers highly regardless of the quality of work. Doing so usually also takes less effort than critically analyzing work, so the path of least resistance tempts the students. Incorporating graders' reviews of peer-evaluations may introduce accountability,

but again the labor required may not scale well to thousands of evaluations to review.

Unfortunately, with the scalability and convenience of MOOCs come detriments to pedagogy and assessment. However, there are opportunities to improve the educational quality of MOOCs. Online tools for practice, interaction, and collaboration could encourage active learning exercises to supplement video lectures. In addition, with the large scale of MOOCs, educational research can benefit from comprehensive data on educational outcomes. Teaching interventions are typically difficult to demonstrate statistically significant outcomes with the relatively small enrollment of traditional classes. However, with thousands enrolled in MOOCs, educational researchers should be able to collect more data while having more control over delivering different interventions to different groups. Likewise, there are opportunities to leverage automated grading tools and to experiment with techniques for improving accountability in peer-evaluation to scale with massive courses.

Educational Roles

As previously discussed, MOOCs already do well at attracting self-driven students interested in refining existing skills or learning new skills. With the flexibility of self-paced courses, students must assume responsibility to push themselves through learning the material and adequately preparing for assignments and exams. In this sense, MOOCs may advocate self-accountability similarly to Swiss classes that do not require attendance and often feature only one or two exams, but are also marked by high attrition. The preliminary reports^{2,3} show particularly high attrition in MOOCs, nearing 90 percent. Instilling a sense of personal responsibility can be beneficial but educators need to engage in a discussion about striking the right balance of expecting students to demonstrate self-

motivation and supporting students to succeed. Comparing attrition of self-guided MOOCs to that of paid, teacher-guided courses may not be fair. Instead, perhaps MOOCs should be considered contemporary equivalents of public library books: resources for free, self-guided education. Nevertheless, as schools adopt techniques and technologies inspired by MOOCs, they should seek to encourage personal responsibility while minimizing attrition.

Similarly, the challenge of scaling teaching and evaluation methods to massive classes requires innovative approaches to teaching and may redefine the role of teachers. Along with the hype and excitement of MOOCs, some teachers have already expressed concerns. Some teachers worry that choices to adopt MOOCs are top-down administrative decisions instead of decisions to address students' and teachers' needs⁵. As teachers become further removed from direct interaction with their students, their responsibilities grow for creating novel course material and attracting new students. However, teachers have already voiced concerns that in a purely open-content model, MOOCs do not protect their intellectual property^{4,6}. As MOOCs influence the future of higher education, teachers will be challenged to redefine their role and to innovate learner-centered pedagogy.

Conclusion

The MOOC educational model provides potential for large-scale, accessible courses. However, serving communities often excluded from higher education will require accessibility and value beyond offering free, online courses for self-improvement. MOOCs' and traditional universities' aspirations converge with a common goal of effective education that is accessible beyond geographic, economic, and social boundaries. Consequently, both the strengths and

weaknesses of MOOCs should inform changes in higher education to meet this lofty goal. Likewise, a discussion within the educational community must consider changing roles for teachers and students alike. Ultimately, lessons learned from experiments with MOOCs should serve as an impetus for innovative pedagogy motivated by global demands for education.

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Life after the PhD: Graduate career landscapes in Switzerland and the U.S.

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Why go to graduate school? Or better yet, why get a PhD? The answers to these questions are as varied as the students who enroll in graduate programs. Passion for a subject, encouragement from undergraduate professors, or a lack of job prospects are all different factors that may play a substantial role in propelling students down a graduate school path. While we each have our own reasons for pursuing (or not) a PhD, completing the degree is only the beginning; something easily lost sight of in the effort to finish a thesis. After 4 years (or 5 or 9 years) of intense study and work, with degree in hand, what are doctoral graduates facing?

Traditionally, a PhD was the first step in an academic career path. In 1973, 55% of life science PhDs in the U.S. had secured a tenure-track position at a university within 6 years of finishing their degree¹. By 2006, that number had dropped to 15%. With the recent economic contraction and funding for tenure positions drying up at many institutions, it stands to reason that number is currently even lower. Yet the production of PhDs has continued to grow across the globe, particularly in countries experiencing economic booms such as China and India. Between 1998 and 2006, graduation of new doctorates in all fields increased by 2.6% in the U.S., 5.2% in the U.K., 6.2% in Japan, 8.5% in India and a whopping 40% in China¹. From 2006 to 2008, the total number of individuals with science or engineering doctorates in the U.S. increased by 5.6%².

Industry has typically stepped in to absorb the excess created by this disconnect between PhD supply and demand in academia. Recognizing this, some countries and institutions have taken proactive approaches -- encouraging science and engineering students to pursue industrial positions and promoting PhD training as a valuable asset to the private sector. Facing a massive shortage of jobs for doctorates, Japan initiated a

program where global companies were offered ~\$47,000USD to hire some of their unemployed post-docs¹. Despite the unemployment situation in Japan, PhDs are generally more likely to secure at least some kind of job, maintaining low rates of unemployment. For all science and engineering doctorates, unemployment was 1.7% in 2008 in the U.S, compared to a national average of 5.8%².³ However simple rates of employment do not take into consideration under-employment. Indeed, 9.6% of all science & engineering doctorates in the U.S. are actually employed in part-time positions.²

Not all PhDs who are employed outside of academia are in industrial positions that take advantage of their advanced training. What about the doctorate teaching in primary or secondary schools in positions that only require a master's degree? What about the resources poured into a student to train them through the PhD when they ultimately work in positions that do not require that level of training? In the U.S., acknowledgement of over-production of PhD graduates by the mainstream has been slow. In 2011, *Nature* published a special issue to address the problems surrounding the growing number of doctorate holders in a shrinking job market, and yet there are still public calls for graduation of more scientists. Improvements and growth of STEM (science, technology, engineering and math) education is being pushed politically and within many science fields. The April 13, 2013 issue of *Science* was devoted to "Grand Challenges in Science Education"⁴. The focus on STEM education is often at a primary and secondary school level where improvements in understanding of basic scientific method and technology are the focus. However, what happens if this promotion of STEM education includes pushing more students towards pursuing STEM undergraduate degrees? Already in many fields graduate degrees are unofficial requirements to find employment as the job market

is already saturated with undergraduate degree holders. Increases in STEM undergraduates will likely further increase graduate degree students and subsequently freshly minted PhDs. Where are the jobs that will support these students?

These were some of the questions weighing on my mind while our Global Perspectives Program (GPP) group visited universities in Switzerland, France, and Italy. The focus for the 2013 trip centered around the question "Universities & Society: Meeting Expectations?" My personal curiosity about PhD career futures meshed well with this theme and developed a series of related questions -

- Does the current rate of doctorate graduates meet society's needs? Is society providing opportunities and supporting the doctorates already out there? What about future doctorates? In particular, I was curious about Switzerland's approach to these questions. Does the European system suffer from a disconnect between the supply of highly specialized and highly trained PhDs and demand for their skills, similar to the U.S.?

According to the 2011 report from Organisation for Economic Co-operation and Development (OECD), the rate at which 25-64 year-olds obtain degrees in advanced research programs for Switzerland is 3% and for the U.S. 1% (Table A1.1a)⁵. The number of students who complete a tertiary (undergraduate) degree and continue to a graduate degree of some kind in Switzerland has increased from 19% in 2008 to 27% in 2011, compared to the OECD country average increase of 1%⁶. It is important to note that this increase coincides with greater adoption of the Bologna Process and might reflect the increase in masters' students, rather than a significant increase in PhD students. However we can likely assume there hasn't been a decrease in doctorates based on this information.

Here is where the ability to compare hard numbers between the U.S. and Switzerland end. While the National Science Foundation in the U.S. has compiled extensive statistics on science PhDs, similar databases do not exist for the doctorate population of Switzerland. In addition, some universities do not keep strict records of all doctoral students, since historically many PhD students engage their advisors directly rather than applying through an umbrella department or university administration. During our visits to Swiss universities the 2013 GPP group found graduate programs in transition, with some students pursuing a PhD through the traditional format while other students began by applying through a “graduate program” similar to those found in the U.S. Graduate programs seemed to be more common in the sciences, having been adopted earlier, and were spreading from those fields into humanities departments. The Université de Strasbourg had a very well developed Graduate School in comparison to the Universität Zürich, whose graduate school was relatively young. This variability makes it tricky, if not impossible, to track the number of doctoral graduates and compare them to previous rates.

As for employment by degree, OECD reports employment rates for 25-64 year-olds, lumping traditional bachelors, masters and PhDs together. For Switzerland this rate is 87% and for the U.S. it is 81% (table A5.1a)⁵. Switzerland has one of the lowest unemployment rates in the world, so it is safe to say PhDs in Switzerland are likely doing just as well if not better than U.S. PhDs in terms of general employment, but hard data about under-employment is lacking⁷.

An informal “survey” of graduate students in both humanities and sciences offered the estimate that only 3% of PhD students would stay in academia in Switzerland. It was clear in our casual discussions that graduate students felt some anxiety over job

prospects upon completing their doctorates. That said, my very unscientific comparison suggests that it may not be as great as in the U.S. Part of this is based on the fact that industry jobs are relatively strong in Switzerland and the Swiss economy is stronger. Beyond that, there is much greater integration between industry and academia in Europe, which helps align graduate students with immediate job prospects. For example, the Friedrich Meischer Institute for Biomedical Research is a collaboration between Novartis and the Universität Basel (UniBasel). Graduate students enroll through UniBasel to complete the PhD and often go on to pursue careers with Novartis. Likewise, at Scuola universitaria professionale della Svizzera italiana (SUPSI) and Politecnico di Milano (PoliMi) we heard how private sector engineering firms would collaborate with researchers and graduate students at these universities to complete projects and publications. PoliMi was actively engaged in promoting their PhD engineers to industry as highly trained specialists rather than just academics through a career services program, and were justifiably proud of their student’s employment rates – 80% of all graduates (all degrees) had jobs within 4 months of obtaining their degree (verbal communication).

This level of integration between private science and engineering industries and academia is less common in the U.S. and often complicated by conflict of interest concerns related to publication of data. Graduate students may find themselves unable to publish their thesis research due to intellectual property agreements with companies, hampering their first steps into a job market that evaluates candidates primarily on publication records. When I inquired about conflict of interest concerns amongst European graduate students, they said it was typically not a problem, and that often companies were eager to publish, regardless of experimental outcomes.

Whether similar integration exists for humanities graduates is unclear to me. However one humanities PhD shared with me her prospects of moving into government or cultural positions with her degree. She said even if she were to apply for positions that were not directly in her field of research, her degree was a benefit. The re-tooling of the PhD from merely an academic degree into a degree which confirms a capacity for high level intellectual performance benefits both science and humanity doctorates in the job market.

Do universities' production of new doctorates meet European societal needs? Conversely does European society support those doctorates by providing them the positions that fit their level of training? These are not simple questions. Nevertheless, the strength of the Swiss economy,

employment statistics, and informal discussions with graduate students support my hunch that obtaining appropriate employment for a PhD is more likely in Switzerland than in the U.S (although it is more likely to be outside academia). That said, PhDs in the U.S. still fair better than their bachelor-degree counterparts. Globally, graduate students are facing a job market in flux; one that most likely does not include an academic path but rather values flexibility, innovation and the ability of the doctorate to translate skills learned in their training to new and different environments. As more institutions and students embrace this, the role of PhDs in society will transform so that both society and the doctorates benefit.

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“It’s Not a Problem”: An Inquiry into Global Perspectives on Diversity and Higher Education

Mike Ekoniak, Virginia Tech

Anyone involved in US higher education would probably agree that there is a broad effort focused on increasing the diversity of our institutions. Historically, many colleges and universities excluded women and black students from attending. With some notable exceptions, most colleges and universities were the exclusive domain of white men from privileged backgrounds until the later half of the 20th century. Throughout the 1960s and early 1970s most of US higher education became coeducational. When it became coed in 1996, Virginia Military Institute was the last state institution to admit women.

In more recent years, efforts to increase diversity have shifted from elimination of restrictive admission policies to encouraging, supporting, and promoting diversity. U.S. higher education institutions no longer consider it adequate simply to *allow* anyone to attend; instead, they increasingly recognize the importance of fostering inclusive campuses that *promote* the inclusion of students representing a broad multitude of diversities. While there is no one definition of what makes a campus diverse, there seems to be an agreement that diversity is a *good thing*. Virginia Tech’s Principles of Community reflect this sentiment in stating that:

We affirm the value of human diversity because it enriches our lives and the University. We acknowledge and respect our differences while affirming our common humanity.

In support of a commitment to increasing and promoting campus diversity, many institutions offer a plethora of initiatives, programs, and organizations with diversity integral to their missions. There has also been recognition that campus diversity goes beyond the student body and also includes faculty, staff, and administrators. While the initial focus was on visible diversities, more recently there is an increased awareness of the

less visible; we're beginning to value the inclusion of individuals from a range of socioeconomic statuses, religions, and sexual orientations.

With this historical and cultural background in mind, I went into the Global Perspectives Program with the goal of investigating the ways that administrators, professors, and students view the importance of diversity at their institutions by answering the following questions:

1. Are there diversity initiatives and programs and how are they implemented?
2. How do such initiatives and programs address diversity of sexual identity?
3. Are there university organizations that support LGBTQ students and faculty?

Generally, my inquiry in Switzerland, France, and Italy revealed that discussion of diversity routinely starts and ends with women. Historically, women were greatly underrepresented at Swiss universities. Today, they comprise over 50% of the student population. According to Rector Antonio Loprieno of Universität Basel, there has been an ongoing discussion about gender equality at Swiss higher education institutions for the past 20 years, but it is only within the past few that other aspects of diversity have entered the consciousness of administrators.

Everywhere I asked there seemed to be an assumption that a lack of overt discrimination implies that there is not a problem. The prime example used repeatedly by many people is to state that same sex marriage is legal in Switzerland and France and therefore there is no need for universities to consider issues related to sexual identity. Multiple individuals stated what amounts to "it's not a problem." Alain Bertz, president of Université de Strasbourg, said that based on the fact that he has had no complaints of discrimination based on sexual orientation and that same sex

marriage became legal in France a few days prior it must not be an issue. Perhaps more surprising to me was that an administrator at Politecnico di Milano shared a similar sentiment even though the headline that morning in the International Herald Tribune read: "Same-Sex Couple Say, 'I Do,' as Italy Sticks to 'I Don't'." A gay male student I had the chance to speak with revealed a slightly less optimistic view. While same-sex marriage is legal in Switzerland, same-sex couples do not have all the same rights as opposite-sex couples or even heterosexual individuals. For example, while single people and opposite-sex couples can adopt children, being in a registered same-sex partnership means that you lose your ability to adopt. Personally, I believe this a more salient perspective than those of the heterosexual men saying "it's not a problem."

One area that we would undoubtedly consider a diversity issue in the US was not framed that way in Switzerland – ethnic minorities. We were told that Zurich has about a 30% migrant population and that universities recognize that those groups are underrepresented in their student populations. However, because Switzerland has a tracked educational system where children choose the university or non-university track at a young age, the official we spoke with did not see the need for the universities to take action. Conversely, the underrepresentation of ethnic minorities in higher education is viewed as a problem for the secondary schools to sort out. There is however a focus on recruiting international students, but this aims to increase the prestige of the university rather than increasing ethnic diversity

I believe the lack of diversity programs and/or awareness I noticed while visiting these universities results from a different sociocultural view regarding the role of the university with respect to the community. While US universities are a part of the communities they serve, they are

also seen as communities within themselves in a way that goes far beyond academics. In Europe, it seems that universities are far less separate from local communities. They are the places that students go to take classes or to do research, but European universities do not attempt to offer a comprehensive support and social structure system similar to US institutions. If a student wants to join an organization or interest group it is more likely that they will find one that serves the entire city rather than being specific to the university, especially for non-academic organizations.

Overall, these differing views in the US and Europe on the role of the university are a result of this fundamental difference in the perceived role of the university within society. It was quite surprising to me to discover that despite the difficult time that US institutions have achieving equity goals that European institutions are even further behind. However, the recognition of and positive gains in gender equality expressed by the administrators we met indicates that there is a potential for this to change going forward.

Global Higher Education – Global Campuses?

Simon Endes
University of Basel

Introduction

The bilateral Global Perspectives Programme (GPP) of the Virginia Tech University (USA) and the University of Basel (Switzerland) is aimed at preparing future academic leaders. It's a basic understanding of the GPP programme that current academic higher education implies a global perspective. Through the GPP “graduate students [...] examine differences in academic practices and [...] develop innovative and effective approaches that foster international awareness and education,” as outlined in the GPP syllabus. Within universities knowledge is perceived as a cultural goods belonging to mankind in a whole. Higher education is therefore regarded as not being exclusively situated within national borders. On this basis, universities more and more reach out beyond their local, community, regional, societal or national borders to create an international environment. In Europe the Bologna process strengthened this international orientation by promoting a European system of higher education.¹ This was implemented by creating a uniform system of degrees, degree courses and credits, and based on that the promotion of mobility and cooperation. Besides, universities traditionally try to attract international students or offer international programmes to send their students abroad. A different, but recent approach to internationalization of higher education is through massive open online courses (MOOCs). These large-scale and online community based courses are intended to reach a much greater audience than a classroom could achieve. Leading US universities have started an educational wave of MOOCs under the names of edX and Coursera. Swiss universities are also joining this trend. The EPFL Lausanne is already offering courses in French within Coursera. The ETH Zurich is currently developing a MOOC in informatics under the lead of Prof. Bernstein.²

Various universities pursue a different strategy to enhance their global perspective and global perception. They set up global campuses, branches of their university in foreign countries. What's the benefit for these universities? Is it a true success story? What's the benefit for the students? And for the society? How does this development of foreign branches relate to the concept of international higher education? And how does this create global citizens? This report deals with the example of George Mason University's (GMU) attempt to create a global campus in relation to these questions.

GMU's global campus in South Korea

Besides various other US higher education institutions the Swiss group of GPP 2013 participants also visited the GMU this year. GMU is the largest public university by head count of Virginia with around 33,000 students.³ GMU is located in the National Capital region, which is the Northern Virginia technology area near Washington DC and comprises three campuses (Fairfax, Arlington and Prince William) and a site in Loudoun. GMU aims at being an innovative institution with strong programs in economics, law, creative writing, computer science, and business, with GMU faculty have twice won the Nobel Prize in Economics, in recent years. GMU calls itself a community driver based on the community driven mission through educating the next generation of leaders in several professional areas, cultural life or sports. There are a variety of community outreach programs contributing to quality of life and also to the economy with billions of dollars⁴, which makes GMU an important and engaged partner with the local community.

However, GMU does not only focus on the local community. GMU has a strong understanding of

being an international university with a global perspective. GMU has a specific interest in dealing with diversity and is committed to promoting diversity and creating a community that cultivates a wealth of viewpoints. In a 2004 survey of 357 universities GMU was ranked number one for diversity.⁵ GMU has a Center for Global Korea and along with that Korean studies have a long tradition. Besides governmental and educational cooperation, GMU has a living faculty and student exchange, with South Korea being "among the top 3 countries sending students to study at Mason".⁶ There are also some ties due to a growing Korean community in the Washington DC area.

GMU is investing even more in the collaboration with South Korea. GMU plans to set up a Mason campus in South Korea as part of the Songdo Global University Campus located in the Incheon Free Economic Zone nearby the national capital Seoul. These efforts are in line with the understanding of being an innovative global university that creates global citizens. In October 2012 the Board of Visitors of the GMU authorized the establishment of this branch campus. Thereby the Board also revealed their expectations regarding this plan. The Korean program should "provide clear and continued benefits to the Commonwealth of Virginia, including substantial opportunities for in-state students to enjoy study-abroad experiences, internships and employment; opportunities for faculty development and research; beneficial partnerships in research; ties with Virginia, Korean and international business, especially those that contribute to economic development."⁷ Hence the duality of the motivation behind the GMU expansion plans abroad becomes apparent: on the one hand a Mason campus in South Korea should directly contribute to the quality of students' and faculty education, mobility and international experience. Initially there should be undergraduate programmes in management and economics,

with more programmes to follow including a graduate programme. On the other hand there is a big marketing and economic incentive. The Mason campus in South Korea is planned to be not only self-supporting in terms of direct and indirect organisational costs, but also lead to positive international reputation and marketing revenue. For GMU a branch campus in South Korea is regarded as a chance to become a global and innovative university. The same incentives are the basis for similar projects like the Qatar Foundation’s Education City with branches of the Virginia Commonwealth University, Texas A&M University, Northwestern University, University College of London, Weill Cornell Medical College, Carnegie Mellon University, Georgetown University School of Foreign Service and the Hautes études commerciales de Paris located in Doha, the capital of Qatar.

On the basis of these marketing considerations it’s not astonishing that projects like these are located in financially strong and growing regions. That is

why GMU together with State University of New York, University of Utah and University of Illinois chose South Korea’s Incheon Free Economic Zone, which lies in the centre of a powerful economic East Asian region surrounded by China and Japan. GMU’s vice president of global strategies, Ms Schiller, puts it in a nutshell: “The Songdo campus strategically and intentionally establishes a visible presence for Mason in a prestigious East Asian location and will enhance Mason’s reputation nationally and abroad.”⁸

The hosting regions have similar incentives to build up such campuses and to take the necessary financial efforts. These regions take the effort of combining business, technology and higher education in order to set the basis for further economic growth. Projects like the Songdo Global University Campus are aimed at not only educating foreign students and attracting foreign universities, but also at developing the future domestic academic leadership (see Figure 1).



Figure 1: The Songdo Global University Campus vision and strategy for development.⁹

However, as one has to learn from the past, global campus projects do not imperatively have to be success stories. GMU's first try of a branch campus outside of the US, in the United Arab Emirates, failed after three years without one graduate. Reasons were insufficient enrolment (GMU wanted to have twice as many students) and funding, and difficulties with local governmental authorities.¹⁰ There are also other examples of failed campuses abroad, like the University of New South Wales in Singapore or attempts of global campuses in Japan in the 1980s and 90s. The financial aspect plays a major role in these projects. The global campuses are planned to be self-sustaining, which can't be granted in the beginning, due to unpredictable tuition revenue and funding of local organisations. This is why other universities like the N.C. State and Southern California did not join the Songdo Campus because of financial concerns. Delaware University also backed out of their Songdo Campus plans after they got negative results of a feasibility study that projected too little tuition revenue of possible East Asian future students.¹¹

Conclusion

Setting up a campus abroad or joining a global campus with other leading universities in an economic growing region is a tempting project for many universities. Universities see themselves as global institutions for global higher education. In line with that global campuses are connected with the hope of gaining worldwide reputation and to be pioneers in creating the role models of educating global citizens within the future university. However, the general recipe for success for these projects has not been found yet. One will see in the future, if GMU has learned their lesson and if their second attempt of a global campus will be a success story for the university as well as for the students and the society.

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Culture, Education, and Interdisciplinarity

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A remarkable, global experience was bestowed upon thirteen scholarly individuals for the year 2013. Truly one-of-a-kind, the Global Perspectives Program (GPP) provided an immersive environment for my colleagues and I to explore European higher education. Although such opportunities are rarely available at the graduate level in United States (U.S.), they are undoubtedly critical, life-changing experiences that need implementing. Indeed, a contemporary graduate education must prepare future faculty members to teach, research, and innovate in a world that is increasingly defined by issues that transcend national boundaries. This international experience challenged each scholar to not only learn about European higher education, but also interact and work with people from different countries and cultures. Through these experiences, we enhanced our global understanding, learned to better integrate multiple perspectives, and worked toward meaningful collaboration with international scholars in order to achieve individual and group learning objectives.

I began my study of the European University System (EUS) with three learning objectives: (1) To better understand college campus cultural diversity; (2) To better understand international educational opportunities, and; (3) To better understand interdisciplinarity.

First, in order for potential graduates to become responsible, well-rounded citizens, I think they must possess a moderate level of competence in reference to differential cultures at home and afar. At each of the ten universities visited, I was astounded by the richness of cultural diversity, particular linguistic cultivation. The number of French, German, and Italian speakers found throughout Switzerland is significantly high. Granted, these countries are all relatively close and share national borders with Switzerland, but instead of attempting to utilize one centralized

language, French, German, and Italian (at times communicated with a Swiss twist) are each valued and spoken readily. Additionally, based on my conversations with some of the Universität Basel GPP scholars, Romansh (a Latin-based language) is spoken sparsely by a few individuals. For me, it was readily apparent that many people in Switzerland (and perhaps a good portion in Europe) believe in the relationship of culture, language, and nation. As an American pondering this relationship, I initially thought that a high prevalence of cultural (particularly linguistic) variation was potentially problematic. For example, it seemed that significantly high levels of linguistic diversity potentially fostered day-to-day communicative complications. However, this was not what I physically observed. Even for those individuals who are not fluently bilingual and/or multilingual, they still speak enough broken or jumbled portions of other languages to get by! Thinking about this matter from a higher education perspective, I asked myself: Is this level of multilingualism noticeable on university campuses? Not surprisingly, my answer was an ubiquitous yes. Indeed, multilingualism seems to be an aim and/or principle of higher education policies regarding language, valued at student, professorial and administrative levels, as well as being accepted exclusively by educational institutions. For example, Université de Strasbourg President, Alain Beretz, during his address to the scholars, indicated that the English language is not the quintessential be-all-end-all language. Other guest speakers from different universities visited spoke to this effect, as well. Indeed, these groups of individuals believe that language diversity is a defining element of their cultural uniqueness and educational philosophy. However, with all of this said, President Beretz and other guest speakers indicated that while many of their undergraduate and graduate courses are offered in different European/Swiss-oriented languages, some of

their courses are offered in English, particular graduate courses. This makes sense given that the English language is king when it comes to writing-up scientific research manuscripts. Since the Europeans and Swiss have a knack for producing cutting-edge innovation and research, I suspect that they will not deviate from a necessary linguistic path of offering graduate courses in English, yet still hold their language uniqueness close to the vest.

Second, global educational opportunities in Switzerland are readily abundant. Earlier, I mentioned how Switzerland's geographic proximity gives it a cultural uniqueness, and the same appears to be true regarding international education opportunities. Unlike American students who tend to travel "across the pond" to pursue international education, Britons, French, Germans, and others do not need to travel far and wide to a top-tier education from a different country. Indeed, the colleges and universities throughout Switzerland are quite accessible to students from neighboring countries largely due to the Bologna Process—a reforming process that made European Higher Education "compatible," "comparable," "competitive," and "attractive" to potential students wanting to earn bachelors, masters, and/or doctorate degrees.

The universities that the GPP scholars visited are conventional in a contemporary sense—they focus on teaching and research with innovative, applied research as the primary emphasis. Most of the cantonal universities possess multilingual (e.g., German, French, and Italian) teaching, but as mentioned earlier, upper-level classes and graduate seminars tend to be available only in English. Consequently, this lean toward English provides unique opportunities for American students to take courses and pursue research abroad.

During GPP I estimated that approximately 15

to 20 percent of undergraduates and graduates who study within the Swiss Education System were non-Swiss. However, accordingly to *The Chronicle of Higher Education*, 23 percent of Swiss higher education students in 2007 were non-Swiss. Given this information, it is clear that my initial estimate is a bit low and the percentage is likely even greater now than it was when calculated 6 years ago. While I do not know the exact percentage of Americans studying at various colleges/universities in Switzerland, it appears evident that post-graduate and faculty opportunities are especially attractive to Americans at Universität Zürich (UZH) and Eidgenössische Technische Hochschule Zürich (ETH Zürich). Speakers at these universities proudly mentioned that 4 of Switzerland's 8 universities make the list of the world's top 30 universities with regard to international students. To me, this also seems true in terms of international staff. Appearing as powerhouses with cutting-edge research opportunities, these universities are attractive to any foreign candidate wishing to capitalize on global opportunities for education and research.

Speaking of cutting-edge research, I want speak briefly in reference to my final learning objective: *Interdisciplinairty*. The Swiss National Science Foundation (SNSF) (similar to the US National Science Foundation) supports agencies and institutions that conduct research for the advancement of science and the betterment of humankind. A primary emphasis for the SNSF is to support National Centers of Competence in Research (NCCR) and National Research Programs (NRP). These centers and programs receive hefty funding when interdisciplinary research practices are emphasized. Additionally, the SNSF provides the most financial support to short and long-term research projects conducted on college/university campuses. While it was not explicitly clear whether the SNSF provided more or less money to universities whose research

projects were strictly interdisciplinary, it was evident that this type of research does occur regularly. This is particularly true with engineering and biological sciences sub-disciplines. What is also evident is that Switzerland universities are on the forefront of interdisciplinary arrangements with other universities throughout the world. From my observations, this impressively puts the Swiss Education System at the top of the list for producing progressive, meaningful research.

Innovation and Adaptation: How Universities are Responding to New Mediums of Knowledge Access

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You, the reader, are able to digest this particular sentence because a piece of technology was invented. For the vast majority of you this is most likely some form of electronic device like a monitor, tablet, or smartphone. Some of you might have had the privilege of getting your hands on a printed copy of this journal or perhaps you prefer to read from paper instead of a screen so you printed off a copy at your office. Regardless of your current reading medium, how you discovered this article was dependent on the tools of the internet.

There is currently a group of scholars who concern themselves with the impacts of digital technology and the internet on the future of society. Authors like Sherry Turkle, Howard Rheingold, Peter Diamandis and Steven Kotler explore how the technologies we continually invent ultimately impact our lives¹⁻³. In some capacity they each focus on the power of the internet and how its penetration into main stream society will ultimately impact how we interact with one another. As the fundamental building blocks of how we work, socialize, and learn, the ongoing transformation of these interactions is quite significant. Each author takes a unique stance around this issue and offers facts and figures to support their claims. Turkle, Rheingold, Diamandis, and Kotler talk of the power to connect and the danger of over connection. They write in different styles and focus on different sub-groups within global society while projecting very different visions of the future. However, there is one common theme among these concerned and curious authors. They all believe that the large-scale adoption of connected devices has the potential to impact society on the scale of Gutenberg's invention of the printing press This paper explores how universities, across international boundaries, are responding to this transformation.

The Global Perspectives Program provided the

perfect opportunity to pursue this topic. Beyond the borders of the United States, our group of Virginia Tech and Universität Basel students was given repeated access to students, professors, and administrators at seven different universities in Switzerland, France, and Italy. These opportunities let our team explore questions and attempt to gain a more holistic understanding of the issues facing global higher education. A product of the US educational system, I explored how European and US institutions are reacting to new technologies. Similarly, I wondered how students at these institutions are using the technologies. And what plan, if any, do administrators have to educate students about the transformative tools that allowed you, the reader, to access this article.

My first memory of a computer is of a large desktop unit that sat in the corner of my 5th grade classroom in 1999. I remember occasionally playing some simple educational games during free time, but the computer was never the focus of the classroom. We listened to lectures, worked out problems on the board, did exercises on worksheets, and played games in the bit of grass behind the classroom. Fast-forward fourteen years and that same classroom now has a Smartboard in place of a chalkboard, the teacher has a laptop on his desk, and a cart of laptops is wheeled into the learning space on a regular basis⁴. These changes are not necessarily bad or good, but thinking about them requires one to wonder about previous classroom practices that are now displaced by computer or screen time.

From grade school through college it seems that US institutions are currently very interested in making technology a central part of the classroom. On a large-scale there is now a “National Education Technology Plan”⁵ and most states have specific programs which hope to guide their institutions in the best ways to adopt new technologies. Administrators seem to be concerning themselves

and their budgets with making sure their facilities have the best equipment available. One can wonder if it is the equipment’s ability to enhance the learning environment or the technology trend that is motivating these purchases. The prevalence and penetration of technology at the collegiate level can be seen by simply walking into any lecture hall and trying to find students who are not actively engaged with some kind of screen. Are these interactions enhancements or distractions from the learning environment a professor is trying to cultivate? This is particularly obvious at institutions like Virginia Tech, which has required every student to have a personal computer since 1998⁶. The university’s website states, “We recognize computers to be an extension of the learning tools needed to compete professionally and to co-exist socially.”⁶ It seems that technology serves both roles. It is a tool that in one moment can empower engagement and in the next offer a distraction.

Educational technology plans are happening all around the country and seem to focus on integrating computers into a student’s life as early as possible under the assumption that doing so will help students perform better in society after exiting an educational institution. Many university computer requirements are updated annually and the responsible departments seem quick to adopt new technologies. Online courses are being offered and in recent years many schools have needed to decide how to respond to the growth of Massive Open Online Courses (MOOC)⁷. Interestingly, the typical American university reaction is an administrative decision to mandate more technology use. From school boards to the United States government everyone seems to want to give advice about how to best integrate technology into the classroom.

During our visits to institutions in Switzerland, France, and Italy it became apparent that in

Europe the reaction to technology seems much different. Instead of focusing on programs and policies—that would ensure the integration of technology into the classroom—the administrators believed that the responsibility for technology adoption was best handled on a smaller scale. Technology was viewed as something best worked out by the individual professor and student and not something that needed a top down directive. My personal inquiries into how institutions of higher education were adapting to changing technologies yielded little information. Most of the responses centered around how students seemed to be using their laptops or cell phones in class. The administrators seemed concerned that students might not be doing class related work on their devices but again placed the responsibility of the learning on the student and expected the students to uncover the best way that technology could assist their learning on an individual level.

Neither of these approaches is better or worse than the other. They are different. European universities are structured differently from their American counterparts. The United States sees it as the responsibility of the institution to make sure that the students have access to the technological tools and related knowledge they believe necessary in order to perform in today's society. At the universities we visited while abroad it became apparent that European institutes of higher education place that same responsibility on the individual learner. It is hard to say if one system is better than the other, but recent studies about educational excellence on a global scale has risen alarm among American educators and initiated conversations about how we can improve the relationship between learning and technology in our system.

As we move further into the 21st century, it is apparent that technology is going to become continuously more integrated into every aspect of our lives. Acknowledging this trend brings to

light how important it will be for future leaders, entrepreneurs, and teachers to be skilled and critical consumers of the media that is conveyed through these devices. Although administrators at both European and American universities understand the importance of this type of education, they seem to be approaching the issue from different directions.

The American approach places responsibility on the institution and tries to ensure that every student has equal access to the tools. Through these mandated programs students might find themselves in situations where technology is integrated into the classroom as a formality of compliance instead of a technique to genuinely enhance learning. In such situations Sherry Turkle describes technology as a potential distraction. Her concerns about technology's impacts on the wellbeing of a society may become a legitimate concern in higher education¹. In a similar vein, Howard Rheingold explains that a healthy future in the digital world “depends on how well we learn to use the media that have infiltrated, amplified, distracted, enriched, and complicated our lives.”³

This exploration into concerns of technology use in global higher education has highlighted the importance of understanding different approaches, enabling us to view a problems from new perspectives. Schools exist to help students learn how to learn. Today anyone with an internet connection has access to a vast knowledge database that can guide them through that process. The problem is one nicely captured by Herber Simon – “A wealth of information creates a poverty of attention and a need to allocate that attention efficiently”⁸. Universities and grade schools across the world will need to focus on educating their students on the best ways to manage their attention in this information-rich environment. Perhaps there is a lesson to be learned in Finland's educational model which has

seen recent success in world rankings. The Finnish education system has been credited as being able to educate students on how to filter online content while keeping the classroom relatively technology free⁹. As Diamandis points out, the future of this world can be one of “Abundance” but only if we are willing to collaborate on a global scale to solve the problems that our planet and people will face in the years to come². Education and the ability to access knowledge is one of those problems. Any hope of reaching an answer is dependent not only on American and European collaboration but on a more holistic approach. This approach will require a Global Perspective.

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What Makes the Difference? – A Comparison Between the U.S. and the Swiss Costs of Higher Education

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Meeting expectations? - The theme of this year's Global Perspectives Programme (GPP) made me focus on the expectations that students have to university. In Switzerland it's common knowledge, that the costs for education within the U.S. school system are high and still rising. All postsecondary institutions in the U.S charge tuition and/or fees, although the expenses are much higher at private than public institutions and at four-year than two-year schools (Tab.1). Moreover, college expenses have escalated over time, especially at private four-year institutions. The federal government has resisted shaping educational institutions directly, focusing instead on helping students to meet the rising educational costs ¹.

In numbers, the average tuition fee in the USA is between 8,900 USD and 22,100 USD a year² (Tab. 2). The most expensive university in the USA (Columbia University) has tuition fees of 47,000 USD a year (costs for living, health service, etc. excluded) ³.

In Switzerland, due to the national commitment to education and the generous funding from federal and cantonal governments, tuition fees at Swiss universities are relatively low. In Switzerland the tuition fee ranges between CHF 1000.- and 4000.- a year ⁴ (equivalent in USD, Tab. 2).

Out of these tables the question arises, whether admission to university leads to social inequality? Or does every American get financial support for studying? The socioeconomic distribution of college attendance shows that students of the bottom income quartile mostly got no post-secondary education or go to community colleges and less- and non-competitive colleges. In contrast, in 70% of the most competitive colleges the students come from the top income quartile⁵ (Fig. 1).

Year	All institutions	4-year institution	2-year institution
2010-2011	18,497	22,092	8,909

Table 1: Average tuition fee a year (in \$) in the USA separated by 4- and 2-year institutions ².

	EPFL	ETHZ	BS	BE	FR	GE	LA	LU	NE	SG	ZH	USI
For Swiss students	1,266	1,288	1,400	1,568	1,310	1,000	1,160	1,620	1,030	2,452	1,538	4,000

Table 2: Tuition fee (in CHF) a year separated by university in Switzerland ⁴.

These differences are due to the fact, that the bottom income quartile does not have enough money to go to the competitive universities, since these are much more expensive than the community colleges (Tab. 2, on average the 2-year institutions cost 14,000 USD less than the 4 year institutions a year)³. The government offers support for students. 65% of U.S. students get financial aid, but largely as loans. Today, loans are by far the largest source of financial aid, including aid for low income students ⁶.

In Switzerland the family is legally obliged to come up for educational costs of the first education of their children⁷. When the family doesn't have enough money to support their children they get a federal scholarship. The amount depends on the parent's income and on the price of the education. In the last 15 years the government spent 300-350 Mio Swiss Francs for scholarships ⁸. But the federal financial aid is relieved by private companies, because in Switzerland a certain part of higher education is co-financed by the private

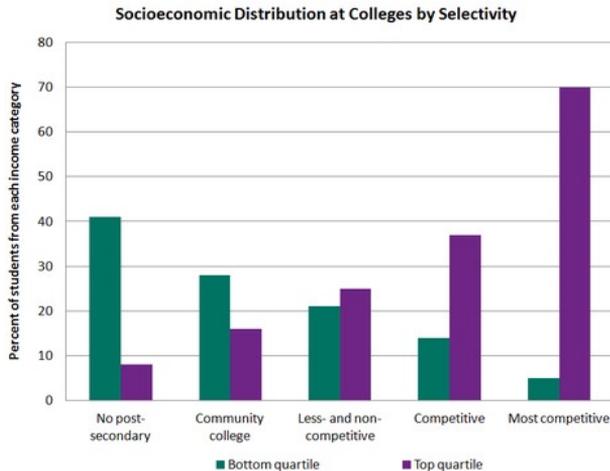


Figure 1: College attendance as of 2006 ⁵.

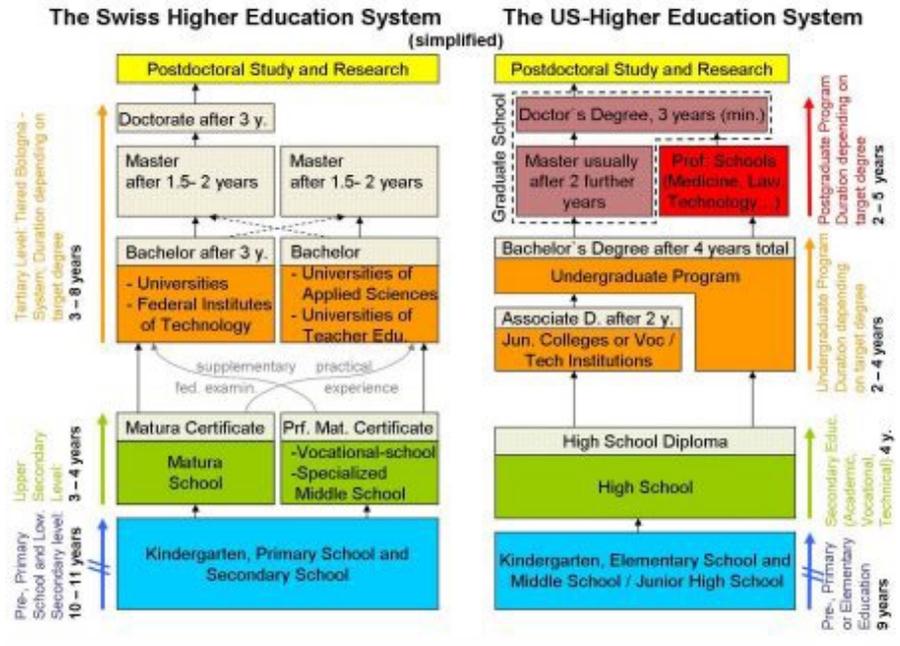


Figure 2: Swiss and U.S. higher education system⁹.

sector. In this regard an annotation of the Swiss school system has to be made.

Switzerland has a dual school system. In Switzerland vocational/professional education is a particularity of the system and represents an upper secondary level alternative to the matura school (Matura Schools correspond to highschools in the

U.S. system and award the “Matura Certificate”, a highschool diploma). Students receive profession-specific education and training and can additionally prepare themselves for attendance at any of the Universities of Applied Sciences (UAS)^{5, 9}. Vocational training students go to school for two days per week. The other days they work at the company where they got a job

as a trainee. They even get paid by the company during the education. In the year 2010/2011 75 % of all students chose the high-qualified vocational training while 25% chose to go to a matura school¹⁰. The vocational training is highly accepted and does lead to an income for a high standard of living.

Matura schools prepare for tertiary-level studies while vocational/professional school graduates can attend the UAS or Advanced Training Schools. Swiss education also allows for individualized tracks, for example, enrolment at a UAS or Advanced Training School after having obtained a Matura Certificate. A one-year internship, however, is required prior to attendance. Some students may be admitted to one of the 12

university-level institutions after receiving a Professional Matura Certificate ⁹.

Figure 2 graphically contrasts the Swiss and the U.S. higher education system and especially the differences at the high school level.

At the end of the vocational training at the age of around 18, the students are full-working employees and can pay for their own living. With the experiences they made during their trainee they are highly appreciated at the job market. Hence the Swiss government has to support the 75% of the students that choose the vocational training only till they are 18 years old. At this age U.S. students commonly finish high-school and are looking for a college or university. This is to say that U.S. students still need financial aid for at least another 2-4 years, when 75% of Swiss students are already self-supporting.

Would it be possible in the USA to outsource part of the community colleges to private companies (One Swiss company located in the United States is already practising the Swiss vocational training¹¹)? Would it be possible to save money to support others, to decrease the loans? Would a dual school system in the USA get appeal? According to the Swiss newspaper “Der Bund” the U.S. government is already interested in the Swiss dual education system as a possible model for future U.S. developments in higher education¹².

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Schoolin' Life: The Experiences of Administrators at European Postsecondary Institutions

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College and university administrators are an essential part of the daily operation and success of their organizations. The culture at European postsecondary institutions is unique and differs from the culture of American colleges and universities. Higher education practitioners are deeply entrenched in and committed to sustaining the culture of their institution. Indeed, these organizations could not function without hard working administrators in every level, in every function area, and every division. Administrators and administrative life at European postsecondary intuitions have garnered little attention from scholars of international higher education. Much of the research on European postsecondary institutions surrounds structural changes, the Bologna Process and globalization of higher education. There is very little literature that explores the professional life of faculty and staff at European postsecondary institutions. Those who study higher education have failed to see administrators at European postsecondary institutions a viable area of research. This undeveloped research stream could yield valuable insights. This essay serves as a first step to highlight this population. Specifically, this essay explores the policies and issues that directly impact administrators and administrative life at European postsecondary institutions.

There is one significant higher education policy that affects administrators and administrative life at most European colleges, universities and polytechnics. That is the Bologna Process. The Bologna Process created the European Higher Education Area to better facilitate the mobility of students, graduates, and higher education staff. By supporting personal development, the Bologna Process also prepares students for their future careers and lives as citizens in democratic societies. The Bologna Process has given greater access to higher education, but also strengthened democratic principles and academic freedom within institutions. It also provided guidelines

for quality assurance for institutions in the 47 member countries. The Bologna Process presents several issues that affect administrators and their administrative lives. Mobility and quality assurance pose particular challenges for higher education administrators in Europe.

From its conception, the Bologna Process sought to increase student and staff mobility. Increasing student mobility was identified as a goal in order to develop multicultural skills among students and simultaneously improve the quality of the postsecondary institutions. Students from the various Bologna countries are able to matriculate at any institution that is a member of Bologna. Administrators at member institutions must familiarize themselves with immigration policies and must speak more than one language to assist incoming and current students with enrollment. Student mobility may increase enrollment at institutions creating additional stressors for staff. Administrators must find creative ways to manage growing demands for their time that are associated with student mobility. Such creativity was evident at Politecnico di Milano (Polimi) in Milano, Italy where administrators explained how student mobility had increased international student enrollment, thereby requiring the institution to provide additional services for this population. The Polimi administrator also stated that most of her team had to learn about visa policies and provide translation services for their students. To provide these high quality services she needs extra staff, but is unable to hire more staff due to the five-year governmental hiring freeze in Italy. Politecnico di Milano has a team that is likely overworked, but with the labor market being unstable there may not be a lot of turnover due to working conditions. Some workers may seek to capitalize on staff mobility portion of Bologna and look for employment opportunities at other member schools.

Staff mobility has issues similar to student mobility. Postsecondary administrators may want to take advantage of the staff mobility, but may not be hireable due to a country's hiring restrictions of non-nationals. This limitation may restrict workers from promotion opportunities to further their career. This may negatively affect administrative life at many European postsecondary institutions because these organizations do not have naturally occurring turnover that can infuse new personnel and ideas.

Bologna increased the amount of administrative work overall at the institutional level. Quality assurance is the main reason. Quality assurance methods have placed additional demands on institutional personnel. Data must be collected and must be accurate. There are procedures that must be followed at the institutional level to ensure compliance. Required forms and reports both the institution's country and the European Higher Education Area have increased paperwork for most institutions. An administrator at Eidgenössische Technische Hochschule Zürich (ETH) mentioned that inefficient requirements for duplicate documents has slowed administrative and institution operation.

There are other state-implemented policies that significantly impact institutional operation. France has an open access higher education system. French universities are open to all "bacheliers" (i.e. students who have passed their bachelors). Some types of degree courses within France are open to all. Student fees in France are incredibly low and students are also eligible for subsidized services that cover everything from restaurants, housing, public transportation, and other discounts. Students from low economic backgrounds receive grants that usually cover all tuition and fees for an academic year. French students are also allowed to move in and out of higher education without consequence. This causes planning

problems for some French universities. M. Alain Beretz, President de l'Université de Strasbourg in Strasbourg, France, said that such openness make preparation for academic year virtually impossible because administrators are unsure on the number of new and returning students would be enrolled. Because of this uncertainty, Beretz may be understaffed and underfunded one academic year but the following academic year might be the other extreme when he will have additional resources due to low enrollment. This routinely places his administrative team in a precarious position every academic year as they attempt to make things work efficiently and successfully. Such uncertainty must make administrative life very difficult at some French institutions.

The Università della Svizzera italiana (USI) had a unique issue. President Piero Martinoli shared that he did not have any sort of vice president working with him. Martinoli acknowledged the absence of positions to which his staff could be promoted was a problem. Moreover, he explained that USI was in danger of losing high performing administrative employees to other organizations or industries. It was obvious that most of the staff was invested in this institution. Nevertheless, one must wonder how long such investment will last without executive positions to aspire toward internally. Such conditions will likely take a toll on administrative life at USI in the long run.

Postsecondary administrators are key to the operation and success of European higher education institutions. These organizations could not function without hard working administrators. It is necessary to delve deeper into the international, federal, and institutional policies and practices that impact administrative life. Administrators and administrative life at European postsecondary institutions are a population that should be studied by higher education scholars. This essay is a small foray into this research subject matter.

Tensions Between University Sponsorship and Academic Freedom

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Abstract

The interaction between private enterprises and universities is increasing. Both in Switzerland and in other countries, corporations support educational institutions with considerable amounts of money. Interrelations of this kind are not inevitably reprehensible, as long as the underlying sponsorship agreements respect the fundamental right of academic freedom.

I. Introduction

In the spring of 2012, the University of Zurich and the UBS Foundation of Economics and Society concluded a framework agreement concerning the establishment of the UBS International Center of Economics in Society (hereinafter “UBS Center”) at the Department of Economics of the University of Zurich.¹ The “UBS Center” – an associated institute of the University of Zurich – is financially supported by UBS (Union Bank of Switzerland) with more than 100 million Swiss Francs. Among other things, the money will be used to fund permanent chairs, positions for assistant professors and scholarships. After the liaison became public, 27 signatories published the so-called “Zürcher Appell”, an international appeal for the protection of academic independence.² With their public letter, the authors express their concern about the excesses of university sponsorship and corporations that use universities as platforms to further their interests. The appeal ends with a request to all stakeholders in higher education to safeguard the fundamental right of academic freedom guaranteed by the Swiss Constitution.

The collaboration between the University of Zurich and the UBS Foundation of Economics in Society is by no means an individual case in the Swiss higher education area. Also noteworthy is, for example, Nestlé’s financial support of the École

Polytechnique Fédérale de Lausanne (EPFL). In 2006, it was announced that the food and beverage company underwrites the University's Brain Mind Institute (BMI) with 25 million Swiss Francs.³ Again, pundits raised concerns over the compatibility of university sponsorship and academic freedom. Unfortunately, it often remains unclear what the word order "academic freedom" in terms of the Swiss Constitution even means. This question should be clarified below. Furthermore, it shall be illustrated how the constitutional provision can be enforced in a specific case.

II. The fundamental right of academic freedom

According to article 20 of the Federal Constitution of the Swiss Confederation, the freedom of research and teaching is guaranteed. Like all fundamental rights, article 20 is directed at federal, cantonal and communal authorities. They are – in other words – the *addressees* of the constitutional provision. In contrast to other fundamental rights (e.g. the right to marry and to have a family), both natural and legal persons can appeal to the right of academic freedom. These persons are also called the *subjects* of fundamental rights.⁴

Before examining the proper content of article 20 of the Swiss Constitution, it has to be clarified, whether the actions of universities can be attributed to the state (addressee of fundamental rights). Provided that the collaboration happens between a *private* university and a corporation, the question must be answered in the negative.⁵ However, the situation is different when a *state* university is involved. State universities are institutions regulated by public law. They are administrative units that are hived off from the central administration to fulfill a public responsibility.⁶ In this respect, the actions of public universities clearly have to be in accordance with

the fundamental rights guaranteed by the Swiss Constitution.⁷

The constitutional provision for academic freedom not only ensures the freedom of research but also the freedom of teaching. This means that scientists should be free to raise questions, to conduct research, to publish their theses and findings and to discuss them without being restricted (freedom of research).⁸ In addition, scientists should be able to independently decide on the content of their classes and their method of teaching (freedom of teaching).⁹ If a university therefore "merely" accepts corporate money, the fundamental right of academic freedom is *not* necessarily violated. However, the matter gets delicate as soon as corporations stipulate the right to – for example – decide about the publication of scientific findings or the staffing of chairs.

In 2007, exactly this scenario became a reality when the two Berlin institutions Humboldt-Universität and Technische Universität Berlin concluded a contract with Deutsche Bank in the amount of three million euros annually. The bank thereby not only got a right to a say regarding the employment of professors but also regarding the utilization of scientific findings.¹⁰ Such deals could also happen in Switzerland. Therefore, the following chapter highlights, how affected university employees could protect their fundamental right of academic freedom.

III. Two practical cases

Basically, one has to differentiate between two line-ups: (1) a corporation finances *new* permanent chairs, positions for assistant professors and scholarships and thereby obtains a right to co-determination. If beneficiaries of these funds approve the terms of the respective labor contract, they *deliberately* waive their fundamental right of academic freedom; (2) a corporation financially

supports *existing* permanent chairs, positions for assistant professors and scholarships and thereby buys co-determination. The fundamental right of academic freedom is therefore confined *in retrospect*.

(1) The most effective way to prevent a violation of fundamental rights is to refrain from signing the labor contract or to pass on grants. Yet, especially in an academic environment, such a decision has far-reaching consequences because jobs and money are notoriously scarce. So what happens to those persons who deliberately waive their fundamental right of academic freedom? First of all, it can be stated that no one can be forced to exercise its fundamental rights.¹¹ And further: someone who – after signing the labor contract – takes up the position that his or her fundamental right of academic freedom has been violated, will have good chances of success in court, as long as she or he is able to assert that the violation is *serious* (e.g. pre-emptive censorship of research results). On the other hand, the university can – provided that the violation is *less intense* (e.g. professorial duty to call the students’ attention to an event of the money-giving corporation) – most likely successfully argue that the employee waived the fundamental right of academic freedom by signing the labor contract.¹²

(2) It is rather unlikely that a corporation is able to exert influence on existing structures (e.g. corporation buys the right to dictate the syllabus of a long-serving professor). Provided that such a situation would occur, the person’s conditions of employment would be violated. Appropriate objections could be brought forward in a trial.

IV. Conclusion

Swiss public universities are increasingly forced to generate money by concluding sponsorship agreements with corporations. As a basic principle, the academic community, politicians and other stakeholders should not be opposed to the engagement of private donors. In fact, the universities’ negotiating skills are requested. Educational institutions must be able to close contracts which, on the one hand, open out into liquid assets and, on the other hand, respect the fundamental right of academic freedom. Such negotiations are admittedly not an easy undertaking. It seems though that the University of Zurich – in the example mentioned above – “sold” itself quite well. However, if the freedom of research and teaching is spurned, the competent board of supervisors (university council or cantonal parliament) has to take care of well-regulated conditions. At the same time, university employees have the option to claim their rights in court.

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4. See WALTER HALLER, *THE SWISS CONSTITUTION IN A COMPARATIVE CONTEXT* 153-55 (2009).
5. However, this does not automatically mean that private universities can leave fundamental rights unconsidered. See *id.*, at 156-57 (the author talks about a third-party effect of fundamental rights).
6. See ULRICH HÄFELIN, GEORG MÜLLER, FELIX UHLMANN, *ALLGEMEINES VERWALTUNGSRECHT* 302-03 (6th ed. 2010).
7. See also article 35 of the Swiss Constitution.
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12. See generally *id.*, at 71-72.

Training Ethical Researchers: A Comparative Analysis

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The Global Perspectives Program

In May of 2013, graduate students participating in Virginia Tech's Global Perspectives Program travelled to Switzerland, France, and Italy with the goal of exploring differences between European and American higher education systems. Our inquiry focused on the theme "University and Society: Meeting Expectations?" Through this lens, I examined how European and American universities meet the societal expectation of training socially responsible and ethical researchers and scientists. Information about this subject was gleaned from the literature as well as presentations and discussion with students, faculty, and administrators at each of the institutions we visited.

Background

A series of catastrophic events, beginning with the detonation of the atomic bomb in 1945, the Three Mile Island accident in 1979, the Ford Pinto case in 1972, and the Bhopal disaster in 1984, generated concern in the media and the public about the consequences of technology on society¹. In addition to critiques of corporations and governments, the role of scientists and engineers in these events also came into question¹. Professional associations and popular media scrutinized the behavior of scientists and engineers. It became apparent that careful attention to the ethical and professional responsibility and training of scientists engineers was needed¹.

Several high-profile cases of scientific misconduct in the late 1980's also prompted American lawmakers to institute formal training in responsible conduct and ethics in research (RCR)². In 1989 the Institute of Medicine of the National Academies stated that the "Lack of formal discussion about responsible research practice and the ethics of research is a serious flaw in the

professional training of young scientists”³. At the time, the idea was that formal responsible conduct of research (RCR) training of graduate students and postdoctoral fellows would reduce incidence of fabrication, falsification, and plagiarism in research³. In the United States, more so than in Europe, RCR training has developed into its own industry from paid consultants to companies that specialize in online instruction³.

Meeting Expectations

One important question that needs to be addressed is whether the American industrial RCR approach to training undergraduates, graduates, and post-graduates has been effective? It appears answer is “No.” Hicks (2013) points out that in the United States, 1 in 3 scientists admits to questionable research practices and retractions of scientific papers have increased exponentially since 2005. This is likely due to greater competition for scarce research funding as well as increased pressure of scientists to produce publications as a measure of scholarly success. This inevitably creates the temptation to sidestep proper research protocols. On the other hand, the Swiss approach to RCR education appears to be less regimented than in the United States.

Isabella Wu points out that “Possessed of a strong sense of self-reliance and personal responsibility, the Swiss live direct democracy, taking their destiny in their own hands.” This cultural ideal of personal responsibility also translates into the Swiss approach to ethics education⁴. Anders Hagström, Director of Global Educational Affairs at ETH-Zürich, noted

In Switzerland there is a culture where personal responsibility is delegated so each department [at ETH] will decide how to include ethics in the curriculum. Individual professors are responsible for

preparing students but it is difficult to police so later in life people will say they haven’t heard of plagiarism etc. There are also no external controls since programs are not accredited...so we cannot provide evidence that each person has been trained. Recent high-profile cases of plagiarism and other ethical issues have done a great job at creating awareness about this.

In another discussion, ETH-Zürich Physics professor Dr. Jonathan Home mentioned that in his research group

Nothing is formally done in terms of preparing students for RCR. For this research data would be easy to falsify because the output is normally a sine wave but the group of students work in team and depend on each other so that helps to keep each other honest.

At the opposite end of the spectrum to the stance taken in the United States, the typical Swiss approach also has its pitfalls as demonstrated by high-profile examples for scientific misconduct. For example, in 2009 Chemist Peter Chen stepped down as ETH-Zürich’s vice-president of research and corporate relations (which included responsibility for quality assurance in research) amid allegations that former students in his research group falsified data. Even though Dr. Chen was not personally involved in handling data, he acknowledged his responsibility as head of the research group.

Conclusion

Regardless of these events, society’s outlook regarding science and technology is generally positive. An overwhelming majority of Americans (84%) say that science has a positive impact on society and has made their lives easier⁵. The

confidence that is engendered by such phrases as “scientifically tested” or “scientifically proven” is evidence of society’s support for scientific endeavors ⁶. As such, it behooves us to make sure that society’s trust in the scientific profession is not eroded. Quality in science involves training responsible researchers in order to expand the value of science itself. In both the American and European contexts, the solution may be for mentors to be more keenly involved in RCR training. Many researchers have relinquished mentoring obligations but science still remains an apprenticeship model and mentors retain considerable influence ³.

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A Closer Look at Outreach Activities of Higher Education Institutions for the Local Community

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Higher education institutions as local players

There are different perspectives to evaluate parts and functions of higher education institutions (HEI). This report focuses on HEIs as local players and considers the questions of how HEIs deal with their social responsibility for the local community, and how outreach activities and the collaboration is formed between them. There are many different aspects to consider that could have an influence on the understanding of HEIs as local players. In particular, the country's higher education system (HES), the different stakeholders, the funding (including expectations about how HEIs spend financial resources) and autonomy of HEIs, the location as well as the size of HEIs. It is an interesting question whether there is a correlation between these aspects, especially between the funding of HEIs and their understanding of serving the local community, and how they live up to these expectations.

First, the report is based on personal experiences gained through the GPP 2013 and on experiences as a member of the University of Basel (Unibas). It is because of this fact that Unibas is used in this report as a reference to compare with different HEIs in the US that were covered in the program. Furthermore, as an additional example for a HEI in Europe, the University of Strasbourg (Unistras), is part of the report.

Second, the essay is based on the assumption that society in Europe and in the US, especially the local community, expects that HEIs do not only serve their stakeholders, like student, faculties and donors, but also serve the residential community in some way, that HEIs are a part of the development and that they take responsibility for the local community. Accordingly, the report does not deal with the different expectations of HEIs from society and government as stakeholders. For this reason it does not describe the various ways of

how residential communities support students.

Third, the comparison does, by implication, only address a few basic points, which seem to be relevant for the understanding of HEIs as local players. The report does not include questions about the responsibility to the global community, like innovation and creating ideas for the social progress.

After a short overview of the HES in Switzerland and the US, the report focuses on some interesting aspects and possibilities of HEIs of serving the local community. There are several factors that will serve the report as benchmarks: first, the territorial situation and location of HEIs (open campus and buildings); second, communication and information activities, especially how HEIs transfer knowledge to the local community (public lectures, magazines, websites etc.); and third, joined projects (culture events, volunteer work etc.).

Higher education system in Switzerland and the US

The HES in Switzerland is structured around the country's federal system. Generally, HEIs in Switzerland are funded by the state: more than 85% of the budget of all Swiss (including federal and cantonal) HEIs is funded by public authorities (about 45% Federal and 40% by the cantons).¹ Tuition fees are very low and make up only a small amount of the budget. Funding by private stakeholders does not have the same importance as in the US. There is an ongoing debate in Switzerland on whether research should be financed also by private donors and not only by the State, because HEI should mainly meet public rather than private interests. There seems

to be a general understanding that the outcome of HEIs belongs to the public, and that HEIs should not gain knowledge for the benefit of private companies that in return fund a project or students. Therefore, HEI has to justify the spending of funds. In the democratic system of Switzerland, HEIs play an important role in the formation of public opinion. HEIs aim at involving the public in some of their activities. How HEIs in Switzerland can meet these expectations will be shown by the example of the Unibas.

The US HES also reflects the federal system of the country. But it differs from the Swiss HES in many ways. Because of the complexity and the variety of HEIs in the US, it is not possible to provide a detailed description of the US HES in this report. But in sum, the US has public HEIs that are partially funded by federal and state resources, as well as private HEIs that are financed by tuition and private donation. Even in public HEIs the student fees (grant and loan programs)² are very important, because they make up for a large part of the budget.³

In view of these different funding schemes, the report compares the understanding of the HEI as local players in the following three categories of outreach activities: first, location; second, communication and information; and third, aspects of joined projects.

Territorial situation and location

The Unibas is located in numerous complexes of buildings. The main buildings of the central university are situated in the city center, some buildings are more in the city's periphery. The University therefore is not delimited to one spacious and defined campus, but most of the

schools are dispersed throughout the city – although some schools are situated in a building complex like a small campus. There are other HEIs in Switzerland whose buildings are spread over different areas of their domiciled city. Most of the different buildings of the Unibas are open access, not only to university members – like student, faculties and staff –, but also to guests and visitors. Of course there are some areas without open access, but lounges, libraries (main library with free computer access)⁴, cafeterias, parks and gardens, for example the botanical garden,⁵ are open to the public. This shows that Unibas understands itself as part of the city and community and not as an exclusive organization,

In contrast to Switzerland where campuses are still rare, it is more common in the US that HEIs are situated on campuses. There are HEIs with a campus inside big cities, whereas in smaller towns the campuses (are due to their size) naturally distinct from the town. In the US it seems to be a political question whether HEIs should understand their campus (and buildings) as an exclusive place only for institution members or as an open place also for community members. It would be interesting to see if there exists a difference between state and private HEIs in this regard. This aspect though cannot be answered in the framework of this report. In the following paragraphs, two HEIs are outlined.

Virginia Tech (VT) is situated on a vast campus, which looks like “a city in the city”.⁶ The campus is not in the middle of Blacksburg, but next to it, separated from the city. The campus, that looks like a park at some places, is open to the public to walk around. But accessing the buildings is only possible with an identification card (student, faculties and staff), with some exceptions, like the dining places or the gift shop. This gives the impression that the local community does not

actively take part in campus life. On the other hand, the students seem to be an important social group of Blacksburg’s population.⁷ Most members of the university community live outside the campus,⁸ for this reason they influence the social life in Blacksburg, especially social events and the local business. Last but not least, VT is an important entrepreneur for the whole area, for this reason there is collaboration and co-existence between VT and Blacksburg.

Another variation of campuses can be witnessed in Boston and Cambridge. Both cities have numerous HEIs – contrary to Basel, where Unibas is the only HEI (next to the universities of applied science). The Massachusetts Institute of Technology (MIT) is one of the HEI in Cambridge and also located on a campus. MIT, as grant land and private university, has the mission that „the MIT campus is open to the public year-round,⁹ therefore visitors can walk through (most) buildings without university ID, contrary to the buildings of Harvard University, that is a private HEI (but was no part of the program). Harvard’s campus is open, but for most buildings people need a university ID to enter it – like, for example, the library.

Finally, another aspect of a university’s outreach could be seen in the provision of free wireless LAN access to visitors. Some HEIs in the US offered free access whereas others do not yet provide it. Visitors at the Unibas cannot use the wireless LAN at the moment.¹⁰

Communication and information activities, especially knowledge transfer

The Unibas, for example, organizes lectures (on various themes) and panel discussions for the public.¹¹ The different faculties or schools

of Unibas also publish research results and interesting projects in open-access journals or periodicals and on their website.¹² A special offer from the university to interested people is the possibility to become a “listener”. For a small fee, “listeners” are allowed to visit lectures and classrooms. Additionally, there are special lectures for schoolchildren as well as elderly and retired people.¹³ These offers show that the Unibas tries to share the knowledge and also welcomes community members in various ways.

All of the visited HEIs in the US also offer open (guest) lectures and classrooms to the public that are announced on their websites, for instance VT,¹⁴ Northeastern University (NU),¹⁵ George Mason University and especially MIT, where most lectures and events are open to the public, and moreover mostly for free.¹⁶

Another way of outreach activity and knowledge transfer is volunteer work. For instance, Boston College has an interesting mission where students get involved in volunteer service for the local (and global) community during their studies.¹⁷ The College supports students who aspire to serve others in a variety of ways, depending on school and department. For example volunteers teach and conduct projects in elementary schools and also help to build new schools. NU in Boston has a special approach with its own Center for Community Service with the mission to facilitate diverse services „to collaborate with local and global communities to learn from and address societal needs.“¹⁸ Boston College and NU consider themselves as partners and resources to their neighborhood, surroundings and the residential community. For both HEIs this is a commitment to civic and community engagement to Greater Boston and beyond.

Joined projects and cultural program

In addition to the methods outlined above, HEIs have more possibilities to collaborate with and serve the local community. In Basel, there are two museums that belong to the Unibas.¹⁹ They are also part of the cultural scene in Basel, and they organize events for the residential community (for example they are part of the night of museums). The university also organizes special cultural events open to the public such as, the annual concerts of the Chorus of Unibas or the 550 years jubilee of Unibas some years ago, a huge festival for Basel (and other towns) with theaters, concerts, and a lot of interactive science workshops for free.²⁰

The Unistras has an interesting approach: It follows the idea to put science into culture as a way to bring science closer to society. One aspect is to open up the campus to the public, because Unistras believes that a campus is not meant for students only. One special cultural project is the “Jardin des Sciences”²¹ with a museum for the public. Moreover, Unistras organizes events like concerts, festivals, exhibitions, Museums’ Night, and they run a planetarium in partnership with the city, which supports students in many ways.²²

George Mason University provides the GM Center for the Arts with a diverse cultural program for the entire University community as well as for the local community. Tickets thereto are for free for Georg Mason students, but not for community members.²³ This is only one example of an outreach activity of the university.

In the past VT had a cultural project, a trade-off with schoolchildren, students and an artist of VT’s College of Architecture and Urban Studies. It was called the Smithsonian Lantern Fields.²⁴ They started with a public workshop that gave the participants the opportunity to become makers of

the work. This is only one project, but it shows that art is another way for HEI to reach the local community.

Conclusion

The overall purpose of HEIs is education and research,²⁵ but each HEI has its history, it grew and developed alongside of and together with the society and the system of its surrounding environment and community. All of the discussed HEIs, the state as well as the private HEIs, have the intention to be a part of the local community, but the ways chosen to reach this goal differ. They offer outreach activities and welcome the community on their campuses or in their museums; they are open and accessible for lectures and cultural programs, and they inform the community in various ways. Some points of comparison show that there are still some differences among the various HEIs regarding open access to buildings (the very important question to open access to education is another one). This can be shown by the fact that buildings, especially libraries and sometimes dining services, can only be entered with a university ID. One of the reasons that some HEIs in the US seem to be more exclusive – than Unibas for instance – in some ways, is probably because of the different HES and the fact that students in the US pay much more in fees compared to Swiss students.

Finally, as shown with the examples of Unibas, the US HEIs covered in the program, and Unistras, HEIs serve the society and the community with outreach activities and do not pursue their goals in isolation as an exclusive entity. Another aspect showing that HEIs are serving the local community is the fact that most HEIs are important entrepreneurs and local players. All these aspects

discussed above give the impression that HEIs do not only feel responsible, they also take social responsibility in different ways – of which only a few have been addressed for present purposes. This co-existence between HEIs and the local community is of benefit to both, because HEIs also need the support of the society and the government, whereas the society also needs the HEIs.

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6. See www.maps.vt.edu (last visited 10.10.2013).
7. To show the relations: VT has about 28'000 on-campus enrollment. Blacksburg, Montgomery County, has (only) about 40'000 inhabitants; see www.vt.edu/about/factbook/about-university.html (last visited 10.10.2013).
8. From the on-campus enrollment 9'087 undergraduate students are living in residence halls. Most graduate students and faculties are nonresidential; see www.vt.edu/about/factbook/student-overview.html (last visited 10.10.2013).
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Should Everybody Know How to Program?

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Introduction

Being a computational linguist, I was trained in programming as well as in linguistics. After school in the mid-nineties, I couldn't decide whether to focus on linguistics (or nowadays "humanities") or computer science/math (or nowadays "STEM"). So I was quite happy to be able to focus on both when studying computational linguistics. I always loved algorithms, abstraction—and yes, I also loved Latin. Maybe that's a rare combination, but in today's world it turns out to be quite handy.

One aspect of the 2013 GPP motto "University and Society: Meeting Expectations?" is the aspect of university as the institution to prepare students to be successful in today's society. In the last decade, we saw the emergence of more and more electronic devices, "digital" is one of the buzzwords in several scientific fields, technology becomes pervasive. We speak of the "Generation Y" as being "digital natives." However, if we look how today's students use technology, they are only users, they are not creators. They often even don't know how to configure programs.

Rushkoff [2010] argues that everybody should know how to program to understand today's technology and to be able to control it instead of becoming a slave of the electronic devices surrounding us.¹ So my personal focus in the GPP 2013 was to explore how universities support or enable learning to program. Of course students in computer science (CS) and related fields (like computational linguistics) are trained in programming, but I was interested in courses for non-CS students.

Answers from US professors

During our visit in the US, I asked my question at two places explicitly and I got two different answers.

At North Eastern University, Dr. Neenah Estrella-Luna², an assistant academic specialist, as she described herself, argued that indeed, computer literacy would be a valuable topic to teach considering that university should empower students to deal with current challenges. However, she admitted that there are no courses offered to all students, not to mention being required. My question was understood as asking about “teaching students how to program.”

At swissnex in Boston³, we met Dr. James Honan⁴, senior lecturer at the John F. Kennedy School of Government at Harvard. He understood my question differently and answered that students would keep faculty busy and push them to use more technology. He talked about MOOCs before and probably this influenced his answer. However, his statement made clear that there is a view of “computer literacy” as “being able to use devices”, including the expectation that instructors offer digital content and e-learning material.

At this moment, I was a bit disappointed. Either the necessity of teaching and learning how to program is not recognized, or, when it is recognized, it is impossible to offer such courses for all students.

While at the MIT, we visited the Media Lab and the “Lifelong Kindergarten” group⁵ headed by Professor Mitchel Resnick. We got an introduction into *scratch*⁶, the programming language and online community intended to teach kids how to program using a game concept. They learn abstraction, algorithmics, and data structures while they play with code snippets, interact with other kids around the world, and program their own games and worlds. It’s an advanced model of learning the concept of *recursion* while playing “Towers of Hanoi.” I was aware of *scratch* before and I really enjoyed seeing some demos and talking to the researchers involved in designing

and implementing *scratch*. I think using games as a vehicle for teaching important concepts is a good strategy - the users aren’t probably not even aware that they acquire valuable knowledge they will use later in school, in university, and in their jobs.

Situation in Switzerland

On the morning of the day I took my flight to Boston, I attended a meeting of an experts panel on CS competencies of the Hasler Foundation⁷ in Berne. The foundation is working towards a proposal for a general subject “Computer Science” at Swiss schools. Currently, some schools in some cantons offer CS as supplementary subject⁸. However, this subject is often taught as it was in the 1990s: students learn how to use certain software, they don’t learn to program, they don’t learn about abstraction, algorithms, and data structures. Kohlas et al. [2013] argue that CS and using software are two different things and that school should teach students the basics of CS to prepare future citizens to cope with everyday life. It is probably a long way to achieve this goal, but it’s a goal worth all the effort.

However, here we talk about serious teaching, not about fun instruction as in the case of *scratch*.

Answers from the Web

After coming home, I searched the web for comments about computer literacy and opinions or activities on teaching programming. Bill Gates, in a questions session at Microsoft’s Faculty Summit, commented that there is indeed a “gap between how computer scientists use computers to automate their lives and how most people don’t really know how to use them effectively.” [Harris, 2013]

Hardesty [2013] talks about the “programmable world” that surrounds us and that will change the

world as we know it by making the distinctions between virtual and physical objects obsolete. To make good use of the new world, we should be able to understand opportunities and challenges (and issues) and how to manage them.

In England, efforts are on their way to teach algorithms to primary school kids [Coughlan, 2013]. The government acknowledges the need to catch up with the world's best education systems. However, this new curriculum is still under development and the teacher's union isn't sure about when would be a good starting point to introduce it - they object only to react to governmental decisions. According to Coughlan [2013] it will include computing de ned as:

Computing will teach pupils how to write code. Pupils aged ve to seven will be expected to “understand what algorithms are” and to “create and debug simple programs”. By the age of 11, pupils will have to “design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems”.

It would be great if England could manage to design and actually implement this aspect.

And there are discussions going on in the emerging eld of “Digital Humanities”: In a twitter post, Hecker-Stampehl [2013] asks “Should humanities scholars learn to program or trust that the programmers in DH projects will understand them?, obviously not aware of the more than 30-year old answer, Froger [1970, p. 213] gave, as Michael Piotrowski responds:

Il n'est pas indispensable que le philologue établisse lui-même le programme, encore que ce soit in niment souhaitable ; il devrait

au moins connaître assez le langage de programmation pour con-trôler le travail du technicien ; en effet, l'expérience m'a appris qu'il ne faut pas s'en remettre les yeux fermés aux électroniciens, mal préparés par leur formation mathématique à se faire une idée juste de problèmes concrets qui se posent dans la domaine de la philologie.⁹

However, even in fields where you would expect learning to program to be part of the curriculum, it is rather rare, as the blog post by Guo [2013] shows. He argues: “If you're a scientist or engineer, programming can enable you to work 10 to 100 times faster and to come up with more creative solutions than your colleagues who don't know how to program. Students would need more concrete motivation than only arguing that programming helps them become an empowered citizen (the argument Estrella-Luna used at North Eastern). Guo accepts that programming tools, i.e., text editors, should be improved to foster programming, but in the meantime we should focus on teaching students programming skills to support creative problem solving.

Larson [2013] emphasizes the need to teach programming to students in schools already. She supports the “Hour of Code” initiative¹⁰ during Computer Education Week 2013, following a similar strategy as scratch: Using games and fun figures, kids should understand basic principles and get an idea about what it means to program.

Conclusion

Studies by professional associations like the ACM (Association of Computing Machinery)¹¹ regularly show an increasing number of jobs requiring programming knowledge. They also show that there is a lack of people with appropriate skills

meeting these requirements. So there is an urgent need in society.

As I agree that school would be an appropriate place to start teaching basic concepts of CS, university should be the place to empower students to actually program. Maybe learning to program, acquiring knowledge about algorithms and data structures should be a required course in every curriculum. I strongly support the statement made by Steve Jobs in an interview in 1995 saying “It teaches you how to think. I view computer science as a liberal art. It should be something that everybody learns.”

However, we are still on the way to implementing those ideas into education, be it in school or at university. If we have the chance to support initiatives like the Hour of Code or panels and experts groups designing curricula, those of us having the respective knowledge, should take part and see this as opportunity to serve society.

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Interdisciplinarity in Academic Research

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In academia natural science disciplines are considered as knowledge in one field of study or profession. Such a discipline comprises people, projects, challenges, and research areas that are firmly tied with academic areas of study, like chemistry, physics and biology. These disciplines were designed by higher education institutes in order to catalog and archive the vast amount of new information gained from the scientific revolution in the early modern age from the 16th to 18th century. Since the body of information developed extraordinary fast and gained significant complexity, it turned out to be beneficial, working in concentrated fields of scientific disciplines. These specializations were established by academia but the most prominent manifestation of subjects was driven by the emerging scientific journals. In the early 19th century, the German universities were the first to connect specializations with curricula, which was adopted by the rest of the world by the approaching 20th century. These disciplines established themselves as the conventional subject we know. However, problems that arise out of the solitude of a specific discipline have to be addressed across specializations, known as inter-, trans- or multidisciplinary.

Virginia Tech as well as the University of Basel both host interdisciplinary research institutes – the Virginia Bioinformatics Institute (VBI) at Virginia Tech and the Swiss Nanoscience Institute (SNI) at the University of Basel. “The work at VBI encompasses collaboration in diverse disciplines such as: mathematics, computer science, biology, medicine, pathology, biochemistry, systems biology, statistics, economics, and synthetic biology. Interdisciplinary research at the VBI involves four scientific research divisions: Advanced Computing and Informatics Laboratories, the Cyberinfrastructure Division, the Biosystems Division, and the Medical Informatics and Systems Division which address the national priorities via support from government, non-

profit foundations and corporations.”¹ “The SNI combines basic science with application-orientated research. In various projects researchers focus on nanoscale structures and aim at providing new impact and ideas to the life sciences, to the sustainable use of resources, and to information and communication technologies. The various research groups focus on seven subject areas: Nanobiology, Quantum Computing and Quantum Coherence, Atomic and Molecular Nanosystems, Molecular Electronics, Functional Materials by Hierarchical Self-Assembly, Applied Projects in Nanoscience and Nanotechnology, and Nanoethics. The various project teams are interdisciplinary groups made up of physicists, pharmacologists, biologists, chemists, physicians, computer scientists and engineers.”² Moreover, the visions of both institutes are very similar: “VBI is committed to making transformative discoveries, solving important problems, developing the next generation of transdisciplinary researchers, influencing public policy, and transitioning scientific research into use.”¹ “SNI’s research focuses to provide new ideas and impact for life sciences, for sustainable use of resources, and for information and communications technologies. But also the transfer of scientific results to the broad public, other research institutions and companies and the commercial use of these scientific findings.”²

During our visit at Virginia Tech we had the great pleasure to visit VBI and talk to the scientific staff of the institute. It was a very fruitful and inspired discussion and we quickly saw the similarities to our SNI at University of Basel – You can draw tremendous benefits by working together as an interdisciplinary team on a problem that is bigger than your field of study. A key component of these institutes is the management or executive board that consists of principal investigators from the different disciplines and acts as the creative think tank. Further, both institutes employ

a communication and marketing group that translates and mediates the research to the public and the authorities. A further step was taken by VBI in opening an office complex in the National Capital Region in 2006, forging closer links with federal agencies, researchers, foundations and business development partners.³

The particular emphasis on interdisciplinary is also reflected in the research proposals which are aimed at high rewarding grants that demand an elaborated interdisciplinary knowledge and infrastructure. Pooling brainpower and disciplines has proven to be very successful strategy and both VBI and SNI were able to increase their success rates on research proposals over the past years. Furthermore, the institutes bring the different researchers closer together in joint seminars and conferences and support a close collaboration. This enables high-ranked publications on crossdisciplinary subjects that beneficially influence the reputation of the institute, attract esteemed scientists, but also help in the next round of applications for research grants.

At the level of research where the VBI and SNI are working, boundaries between the classical disciplines of physics, biology, computer science, mathematics and chemistry become blurred since the principles for understanding the problems at hand are universal, even if the potential applications may differ. This advantage has been identified in the higher education system of the United States, e.g. by appointing principal investigator to several departments. Already the connection to another department can build bridges that usually have to be created by institutes like the VBI or the SNI.

In conclusion we can state that the higher education and in the end also society could profit from a closer collaboration between the classical research disciplines. However, despite the obvious advantages, implementing interdisciplinarity within

the academic research continues to be a challenge. Our progressively mobile and heterogenic society has the potential to inspire problem driven research that is not limited to the isolation of disciplines.

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MOOC's – A Short Overview

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“Learning is a process where human beings lead a dialog with other human beings”¹

How it all began (presumably)

Sal Khan², a young american with roots in Bangladesh and India, worked 2004 in Boston as an analyst for a hedge fund. His cousin Nadia, who lived in New Orleans, struggled with math. Sal began tutoring her via telephone and internet. Nadia improved her math skills and other relatives asked for Sal's tutoring. He started to post videos on YouTube and suddenly got emails from teachers who used his videos in their classrooms. Khan incorporated Khan Academy³ as a non-profit organisation in 2008. The academy received its first significant donation from Ann Doerr. 2010 Google donated \$2 million and the Bill and Melinda Gates Foundation \$1.5 million⁴. Today Khan Academy has 43 employees, more than 6 million users per month, over 280 million videos watched and approximately 1.2 billion problems solved.⁵ Overall more than five million students worldwide have registered for classes in topics ranging from physics to history to aboriginal worldviews.⁶

These so-called massive open online courses (MOOC) are open to everybody for free and can be rewarded with a certificate. It is though not possible to get a university degree or ECTS points.

The best universities worldwide produce MOOC enriched with tests, chats, and forums which can be followed by students anywhere and anytime. With just a few clicks you can sign up and profit from the knowledge of professors from the best universities worldwide. Our partner university Virginia Tech for example already has already experimented with free massive online courses⁷

Switzerland (w)as a pioneer

Switzerland seems to have been ahead of time. The Swiss university conference⁸ incorporated 1999 the Swiss Virtual Campus (SVC)⁹ which

aimed at the promotion of Internet-based learning at the Swiss Institutions of Higher Education - IHE (Universities, Universities of Applied Sciences, Swiss Federal Institutes of Technology). It had been developed in two successive phases: the impulse phase (2000-2003) and the consolidation phase (2004-2008). The Swiss Virtual Campus (SVC) was a federal program which was abandoned in 2008 without leaving behind any Swiss virtual campus. Presumably the demand wasn't there and the technology not yet perfected.

Today MOOCs aren't widely spread in the Swiss German part of Switzerland while they are quite popular in the French part.

The justification of MOOCs

- **Easy access for everybody, everywhere - lifelong learning**

MOOCs support lifelong learning for everybody as it is so easy to get access to knowledge. Education is the key to a nation's economic development. Education should extend beyond formal learning (based in traditional educational institutions – schools, universities etc.) into informal learning centres to support a knowledge economy. MOOCs make this happen.

- **Sending knowledge instead of money – development aid**

It is a great opportunity for universities to bring their knowledge to an interested community. It is a big chance for countries without the necessary funds and infrastructure for decent education programs. They have the chance to get access to the best knowledge worldwide. The EPFL for instance focus on Africa where they expect a big potential. Even poor students from countries with no universities have the chance to get access to courses and to pass

exams.

- **Spread out the image of a university**

It profiles the academics and the universities. Look at what we do and how good we are at it. This is helpful to raise awareness and attract students, faculty and funding opportunities. Some observers think that the number of views of your MOOC might become an important element of the way academics and universities are evaluated for promotion and funding.

- **Internationalization**

Online learning, in whatever form, can largely be offered freely across national borders.

- **Research possibilities**

Every click in a course can be registered. This gives us the chance to research about how people learn.¹⁰

Unanswered questions

- **Cost – ROI - who pays for it?**

The production of a course, to blue-pencil etc. costs a lot of money¹¹. EPFL estimates the cost for a course around 50'000 Swiss Franc.¹² The dropout is immense. 70 out of 100 who sign up for a course start the course. Around 20 watch all the videos and only about 5 – 10 pass the exams.¹³ But what about the ROI? Who pays for the cost? In Switzerland there is the fear that the Swiss tax payer pays for the MOOCs.

- **Who joins a MOOC?**

Two other crucial questions remain largely unanswered: Who are the students who join a MOOC, and what do they want? A survey of Kayla Webley¹⁴ showed that curiosity is still the main reason for signing up for a course:

“I wanted to figure out this Coursera thing,” “just curious about the topic.” 30.5 percent said they wanted to “sharpen the skills” they use in their current job. The smallest proportion, 18 percent, said they wanted to “position [themselves] for a better job.”

- **Personalized interaction is impossible**

“The professor is, in most cases, out of students’ reach, only slightly more accessible than the pope or Thomas Pynchon.”¹⁵ A field research of *The New York Times*¹⁶ showed that MOOCs can be a “conversation in which we’re going to talk about this course one to one” — except that one side (the student’s) doesn’t “get to talk back directly.” Often the teaching staff has to build a firewall not to get overrun by the students.¹⁷

- **Copyrights and academic freedom**¹⁸

Colleges broadly threaten faculty members’ copyrights and academic freedom in claiming ownership of the MOOCs their instructors have developed. Cary Nelson, a former president of the American Association of University Professors, argued that “the worry that the widespread use of online courses will damage departments in public universities facing budgetary pressures is a legitimate concern that deserves serious debate, at edX and throughout higher education. The last thing I want is for my online lectures to be used to undermine faculty colleagues at other institutions.”^{19,20,21}

- **Diligence, safety of data and data protection**

Another question besides the copyrights and academic freedom is the safety of data and the data protection. Who takes care of the diligence? Therefore fifty-eight faculty

members have called for Harvard University to create a new faculty committee to consider ethical issues related to edX, the entity created by the university and the Massachusetts Institute of Technology to provide MOOCs.²²

- **Loss of diversity of education and knowledge**

A lot of professors are afraid of a watered-down education²³ and that MOOCs give politicians an excuse to cut school budgets, and harm less prestigious colleges and universities.²⁴ There is a great fear that the diversity of education and knowledge gets lost and only a few well known and financially potential universities dominate and spread their theories and views around the world. “It may turn out that MOOCs from elite U.S. institutions might pose the greatest disruptive threat to foreign universities”, says Paul LeBlanc, the president of Southern New Hampshire University.²⁵ Venture Capital Companies invest more than a billion USD in MOOC platforms. There is obviously a potential to change the world of education.

Major Players in the MOOC Universe – an incomplete overview

- **International**

Coursera.org, <https://www.coursera.org>, (4.6 million students, 80 Universities), was founded by two professors of Stanford University. Today it provides more than 100 free online courses including Humanities, Medicine, Biology, Social Sciences, Mathematics, Business, Computer Science, and others. Around 4.4 million students and 87 universities collaborate with Coursera. The university of Zurich was number 87 (27.08.2013)²⁶ Other big international platforms are <https://www.edx.org/> and <https://www.coursera.org>

//www.udacity.com/.

- **USA**
itunes U, Udacity.com, EdX.org (Harvard and MIT),
- **Europe**
Iversity, Openuped.eu, Futurelearn.com
- **Switzerland**
EPFL Lausanne offers 12 courses on Coursera.org, one on EdX.org, University of Geneva has four courses running, University of Zurich soon starts with its first course. ETH Zurich offers no courses, nor do the universities of Basel, Bern, Freiburg, Lugano, Luzern und St. Gallen.
- **Platform of the University of Zurich at coursera.com**
<https://www.coursera.org/zurich>
<https://www.coursera.org/course/inf4oec>
- **Platform of EPFL**
<https://www.coursera.org/epfl>
<https://www.edx.org/school/epflx/allcourses>

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Switzerland's Response to "Our Common Future": Swiss Sustainability & Higher Education

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The environmentally adverse practices of various industries sparked global attention, such that the new paradigm of sustainability evolved out of the principles of environmental ethics and environmentalism. These principles were highlighted in the Brundtland Report (Our Common Future) which was published in 1987. This report mandates a re-examination of critical issues of environment and development, strengthen international cooperation on the environment, and raise the level of understanding and commitment to action on the part of individuals, businesses, institutes, and governments. (Carson 1962; Du Plessis 2002; Leopold 1933; Pearce et al. 2012; Sjostrom and Bakens 1999; WCED 1987). Since then, sustainable development bases itself on its goals of meeting the needs and improving the quality of life of humans without drastically affecting the natural systems, resources, and diversity on which they depend (Pearce et al. 2012). The Brundtland Report "Our Common Future" broadly defines sustainability as the ability to meet needs of the present without compromising the ability of future generations to meet their own needs (WCED 1987). This definition focuses on how two key concepts affect the environment's ability to meet present and future needs: the concept of need (particularly the essential needs of the world's poor) and the concept of limitations imposed by the state of technology and social organization.

Sustainability has been globally endorsed and enforced by a multitude of public policies, codes, initiatives, programs, and formation of task groups such as the U.S. Environmental Protection Agency (USEPA), the Kyoto Protocol on climate change, the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED), and others (Pearce et al. 2012). Considering the overwhelming focus on sustainability and the need to protect vital

resources, I focused on two overarching questions to guide my research for the Global Perspectives Program: (1) How has Switzerland responded to the overall global sustainable initiative? and (2) Has Switzerland's response to the global sustainable initiative affected higher education in Switzerland?

EXPERIENTIAL EMERGENCE

The research questions on sustainability in Switzerland did not drive the direction of the research study from inception. In fact, these questions emerged after I arrived in Switzerland. Beforehand I thought research would focus on understanding whether or not there were any sustainability initiatives in place at Swiss universities. Since there was more to the story of sustainability in Switzerland that went beyond the influence of research in higher education institutions, my focus quickly changed to include a social component. My background in the built environment, particularly infrastructure design and urban planning, allowed for a unique approach to investigating these key features observed in Switzerland.

ACTIVE IMPLEMENTATION

My first week in Switzerland focused on sociocultural immersion prior to beginning the official Global Perspectives Program (GPP). This immersion provided evidence of strong influence on sustainability through active implementation of systems and infrastructure design. With great planning and the fortune of traveling with a portion of the GPP cohort ahead of the program, the immersion into Swiss society influenced how I thought about European and global sustainability. It is important to note that the pre-GPP group visited various parts of Switzerland including: Zürich, Fribourg, Lausanne, Zermatt, Basel, Riva

San Vitale, Bellinzona and Lugano. Additionally, during GPP the entire cohort visited several Swiss universities including: Eidgenössische Technische Hochschule Zürich (ETH), University of Zürich (UZH), Universität Basel (UniBasel), Università della Svizzera italiana (USI), and Scuola universitaria professionale della Svizzera italiana (SUPSI).

In each of these places, many infrastructural and regulatory features were noticeable even to those unfamiliar with infrastructural sustainability features. A number of features were observed in various places such as public facilities, hostels, hotels, and universities. The presence of these features in Switzerland seemed to be normal throughout the country, not exceptions to normal operation as observed in other countries. Below are some of the sustainable features observed:

Facilities & Misc. Features

A tremendous amount of 'green' influence was observed in Switzerland's facilities and urban landscape (one that hosts various sustainable components and systems). Some of the features that were observed include:

1. Green roofing and living wall systems that can divert waste, manage storm water, improve air quality, increase energy efficiency, increase bio-diversity etc.
2. Low-flow flushing/Dual flush-o-meter systems that provide options to reduce water usage.
3. Push button shower systems that reduce wasteful water usage.
4. Motion sensors used for energy efficiency of lighting systems.
5. Day lighting, i.e. use of building envelope penetrations (windows, skylights etc.) to allow more day-lighting that increases energy

efficiency and can improve productivity and well-being (a passive design component).

6. Keyed utility shut-off, i.e. usage of electricity only when the room key is placed in a switch type slot.
7. Use of compact fluorescent light bulbs (CFL's) in buildings that can reduce light energy use consumption by 75%.
8. Preservation and retrofitting of building that are hundreds of years old adds to the reduction of waste from demolition and rebuilding new facilities, decrease land usage etc.
9. Wind farms setup via wind turbines in the open spaces were observed en route to Zermatt that produces energy from natural and renewable resources.
10. Green spaces found throughout Switzerland improves urban environment, increases water quality, reduces heat buildup, reduces soil erosion, improves air quality, increases rainfall retention etc.

By no means is this an exhaustive list of components used in Switzerland to encourage sustainable facilities nor an exhaustive discussion of associated benefits, but it gives a good idea of the various ways Switzerland preserves natural resources and the environment.

Transport

Transportation is certainly a discernible feature in Swiss society. There seems to be a great focus on mass transportation (buses and trains), limiting the necessity of personal means of motorized transportation (i.e. gasoline vehicles). Additionally, walking spaces appeared to have priority in certain areas, allowing for more active transport on foot. Not only were there many bike racks observed at

various locations, but there were also many bikes. Numerous facilities in the US use bike racks to receive credits for LEED points without much use of the racks. However, Switzerland seemed to have a need for bike racks in order to facilitate the routine bicycle use by its residents.

Reduction of Natural Resources Use

With my limited global perspective, I found the elaborate system of recycling in Switzerland to be truly amazing. It was obvious that the recycling system was not only a campaign for change initiated by the people, but a governmental influence that made this system function efficiently. Throughout Switzerland, many bin facilities allowed for proper recycling of Polyethylene Terephthalate (PET) bottles, other plastics, glass, and paper. There was no confusion regarding which material goes where. Additionally, an anonymous Swiss local noted that each of the bin facilities were monitored (via cameras) to ensure proper compliance. She also stated that one may be identified and fined for improper recycling, i.e. “they will find you and fine you.”

The aforementioned Swiss also explained the system of recycling personal refuse. As I recall, the various cantons of Switzerland have different colors of bags for refuse, and individuals would have to purchase the color trash bag of that canton. The cantonal color coded trash bags could amount to CHF 20 per pack of small trash bags or CHF 1.45 per each trash bag. As the Swiss resident explained, the expense associated with the cantonal trash bag, “encourages recycling which is free.” Recyclables must be dropped off at various collection points or, in the case of reading/writing material such as newspapers etc., tied tightly via string, and left on the sidewalk for collection.

*Special Note – A student from the UniBasel

GPP cohort explained (as we passed the Basel area waste incinerator plant) that in order to keep the waste incinerator plant operational, the plant needed to purchase trash from France and Germany to keep it functional and add glass in the system to keep it warm and operational, this was due to “over-recycling” in Switzerland.

In addition to recycling of material, food was also “recycled.” In one of the hostels and in one of the universities visited, it was observed that there were separate containers where diners, once finished with their food, would place leftovers in one container, and garbage/recyclables in another. Since I was unsure of purpose for this practice, it was explained that such systems encourage composting of biomaterial such as leftover food.

One of the most remarkable sustainability features I observed in Switzerland was the potable water fountains located throughout the country. Water is one of the most important resources for human survival. Considering that around 65% of the human body is water and that without water for three days one can perish, by providing potable water free of charge Switzerland ensures sustainability of its residents. There is no need to purchase bottled water, increase natural resource use, or add embedded energy from the production of plastic bottles. Instead, one can simply walk to any fountain or tap inside any facility (provided it is not labeled ‘non-potable’) and drink cool, healthy, potable water. Amazing!

SUSTAINABILITY IN SWISS HIGHER EDUCATION

From my observations, the original research focus of understanding whether or not there were any sustainability initiatives in place at Swiss universities now had explicit purpose and could be operationalized via the context of knowledge

and understanding of the strong influence of sustainability in Swiss society. Following suit, pointed questions/research was able to be asked of UZH, ETH, UniBasel, SUPSI, and USI representatives regarding the operationalization of sustainability at each university complimented by my own observations.

At UZH, this question was asked of Dr. Andreas Fischer, “I’ve noticed Switzerland’s focus on sustainable features and processes and I wanted to know, how/if this focus has influenced UZH’s own sustainable mission.” Among other things, Dr. Fischer mentioned that sustainability is not so fully integrated into UZH as much as at other institutions. However, he did mention that there is a UZH researcher who studies the ability to take solar light and convert it into useful chemical energy.

The approach to sustainability at ETH seemed completely different than the approach to sustainability at UZH. One key observation was the ETH solar meter, which gauged the amount of energy that was being produced from solar PV panels on the university campus. Additionally, part of the presentation by Anders Hagström, Director of Global Educational Affairs at ETH, discussed the research focuses found at the Singapore-ETH Centre for Global Environmental Sustainability that included sustainable urban planning and construction, future, tropical and mega-cities, and future resilient systems.

At UniBasel, we had the privilege to ask questions directly to Rector Prof. Dr. Antonio Loprieno, to whom I asked, “it is evident that Switzerland has a strong sustainability initiative, and I wanted to know, how UniBasel contributes to this overall goal.” Rector Loprieno stated that UniBasel is a leader in Switzerland for studying sustainability (even though it is not a technical university per

se) as a result of a catastrophic chemical event that encouraged the development of a new Master's program in sustainability at UniBasel. The program is designed to work interdisciplinarily, focusing on the strong sustainability concept of environment, economy, and society.

Prior to our official visit to SUPSI, it was noticed that one of the visions of the university was to grow "in line with the principles of sustainable development." The presentation provided by the panel of speakers that included President Alberto Cotti, Pamela Valegia, Professor Giambattista, and Dr. Ing. Diego Barrettino essentially covered what I needed to know about SUPSI and sustainability. Certain key items discussed included the development in clean technologies (e.g. skimming pollutants from water by forced gases), fostering new and cleaner production processes, and biomimicry research (imitation of the models, systems, and elements of nature for the purpose of solving complex human problems). Additionally, SUPSI presenters discussed the research of intelligent control of energy use as Switzerland plans to decommission nuclear power systems in the next 20-30 years. Furthermore, research was presented that introduced the concept of a living home that implements use of light systems that would identify energy over-use in the home. It was evident that SUPSI focused on solving "real-world problems" when it comes to sustainability and the future global society.

Lastly, at USI there was a different approach to understanding their relation to sustainability. More or less, with USI, observations were made based on the design of its Lugano campus. It was evident that there was a lot of green space that provided benefits mentioned above. Additionally, the design of the structures were modern and provided vast amounts of natural day-lighting. Lastly, the "ancient neoclassical palace" that originally

housed Lugano's hospital is now integrated part of campus, thus highlighting USI's ability to reuse property and facilities, limiting the material usage and economic strain of major construction.

CONCLUSION

From the various observations, discussions, and presentations, it is evident that there has been great investment in Switzerland toward accomplishing long-term sustainability. From the infrastructural features, to the recycling initiative, and the careful consideration of society, it is evident that Switzerland is a global leader in the sustainable movement. Influenced by the government and with continued encouragement from its higher education institutions, Switzerland does a fine job of integrating sustainability into its social and educational endeavors.

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Self-Regulated Learning Across Cultures

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It is common in American colleges and universities to hear complaints of unmotivated students — students who have difficulty paying attention during class, who neglect textbook readings, and who postpone studying in favor of all-night “cram” sessions hours before important exams, but who still expect to earn high grades based on this minimal effort (i.e., Brenton, 2006, Jashick, 2010). Popular culture portrayals of American students (*Animal House*, the *Van Wilder* series, etc.) emphasize a highly social college experience, focusing much more on attending parties and sporting events than on classes. Yet, international university students are commonly stereotyped as highly-motivated and studious, taking seriously their responsibilities as students (Jashick, 2010).

While studying abroad with Virginia Tech’s Global Perspectives Program, I had the goal of better understanding the validity of these stereotypes by exploring an area known as self-regulated learning. Students who are self-regulated learners accept responsibility for their education, seeking out opportunities for learning even in poor conditions, and confidently and accurately assessing their knowledge (or lack thereof) of topics that they are learning (see Zimmerman, 1990 for review). Therefore, based on the stereotypes provided above, one would expect American college students to have much poorer self-regulated learning than students elsewhere in the world. Because it is difficult to make generalizations about all universities and students around the globe, I set forth to explore evidence pertaining to the idea that American college students may be less regulated than students from Switzerland, Italy, and France (the three countries visited during the 2013 Global Perspectives Program). Still, it is dangerous to make assumptions based on our limited experiences with the many universities that we visited. Nevertheless, I believe that this trip provided a solid foundation from which it is

possible to begin exploring these questions.

The Bologna Process and the Necessity of Self-Regulated Learning

The first necessary step in exploring this topic was to challenge my assumptions that European students are self-regulated learners out of necessity. While travelling through Switzerland before the formal beginning of the Global Perspectives Program, I met several recent graduates of Swiss universities who spoke of courses in which they attended classes and studied independently throughout the semester to prepare for a single exam. Completed at the conclusion of each semester, these singular exams were designed for students to demonstrate the entirety of their knowledge from the class and constitute the entire academic grade. In these anecdotes, students emphasized that they were responsible for their own education, and they demonstrated this responsibility by creating their own study schedules. This transfer of responsibility from teacher to learner is very much in line with self-regulated learning. That said, it remained unclear if this shift was due to the students' own motivation or rather due to a lack of support from the university.

When visiting several Swiss universities, as well as Université de Strasbourg in France and Politecnico di Milano in Italy, I discovered evidence that each institution provides a great deal of support and structure to student learning at the bachelor, master, and doctoral levels. Although several universities, including Université de Strasbourg, clarified that professors were hired on the basis of research, rather than teaching, it was clear that classroom activity was a priority in many ways. Both Universität Zürich and the Eidgenössische Technische Hochschule Zürich (ETH) emphasized that students were evaluated with multiple choice tests after every “module.” Additionally, lab-based learning opportunities and problem sets were

provided to allow students to better interact with the material that they learned. Scuola universitaria professionale della Svizzera italiana (SUPSI) and the Università della Svizzera italiana (USI) both advertise lectures with mandatory attendance, thus removing some of the temptation that students may feel to skip lectures. Meanwhile, outside of Switzerland, at Université de Strasbourg and Politecnico di Milano, we learned that students are provided with training courses that focus on skills that may help them in future workplaces (e.g. foreign languages, communications, teaching, professional development, etc.).

The differing opinions of former students and current university officials regarding the amount of support that the universities provide may be a result of the Bologna Process. Established by the Bologna Declaration of 1999 and adopted by 46 countries within 10 years of its establishment, the Bologna Process aims to improve the mobility of European higher education degrees (European University Association, 2008). It does so by establishing a system of credits and by more uniformly defining the meaning of the bachelor, master, and doctoral degrees. As can be expected, implementing such a system required many universities to make substantial changes in their approach to education. In fact, each university that we visited spoke of the Bologna Process as an adjustment, speaking of the difficulties, but also the benefits, of the transitory period that they found themselves in. With such significant changes in the educational system, many universities have begun to adopt a more student-focused approach to university life (European University Association, 2008). Therefore, it is likely that many of the support structures that we saw in place at the universities were relatively new. Such structures may not have been in place when former students (with whom we spoke) attended, explaining why these students felt a lack of support from the

university. It is likely that future students will experience more support than the generations of students before them.

Highly-Motivated Students Abroad

Although Swiss, French, and Italian students appear to be more supported by their universities than I had previously expected, this support does not seem to have adversely affected their levels of self-motivation. In fact, representatives at USI proudly boasted that the university is a “magnet for competent, motivated students.” It was clear from the actions of students at other universities that they were self-motivated as well. Mostly at the master or doctoral level, but sometimes at the bachelor level as well, students at Politecnico di Milano are able to apply their education as part of PoliSocial, a program designed to provide students with internships in developing countries. Meanwhile, motivated students at ETH take their education so seriously that they choose to award good professors with a “Golden Owl” award. The award has become so important to professors that a golden owl symbol is added to award winners’ contact listings in the faculty directory. ETH students value research as well, choosing, even at the bachelor level, to enter laboratories to complete short research projects. Professors at each of these institutions understood and spoke to the fact that their students take the initiative to complete most of their learning outside the classroom, whether independently working through difficult homework problems or through conversations with friends. Meanwhile, students seem to understand that, with or without the support structures that the universities have begun to put into place, they must pass their exams at the end of the semester.

This understanding may be due in part to the advanced age of students when they enter the university. The average age of new entrants at the

Universität Zürich is 21.7 years, as compared to the United States where less than 30% of college freshman are 19 years or older (Pryor, Hurtado, Saenz, Santos, & Korn, 2006). Furthermore, the percentage of Swiss students who attend university (13%; National Science Foundation) is far lower than those who attend in the United States (68.2%; National Center for Education Statistics). As such, those students who do attend may take their studies more seriously than those in the United States who may have only chosen to attend for more social reasons or because “everyone else was doing it.”

Mature Students at the Doctoral Level as Well

The sense of purpose is particularly clear at the doctoral level. When a panel of students at the Universität Basel was asked why they were pursuing a PhD, most students cited their degree’s usefulness to society. This maturity in graduate students fits very well with a culture in which graduate students are treated as respected employees of the university. At Politecnico di Milano, graduate students were often referred to as “early stage researchers,” and many other universities referred to them as “junior colleagues.”

At the doctoral level, just like at the bachelor and master level, universities emphasized the importance of student support. For example, Politecnico di Milano emphasized the crucial role of supervision and assessment of the doctoral candidate, while the Université de Strasbourg boasted of a maximum of 2-4 students per advisor in order to ensure proper attention was given to the student. This support is important. At Universität Basel, a panel of doctoral students pointed out that fewer students quit their doctoral program now, under the post-Bologna guidelines, than in the past. Yet, this support comes with a different flavor than did the support structures provided for less advanced students. Although doctoral

candidates are given some guidance, they are treated as employees of the university. It was clear from discussions with students at multiple universities that doctoral students are given a great deal of independence in which to mature as researchers, teachers, and members of society. No doubt, such maturation requires a great deal of dedication and motivation. This also requires a tremendous amount of intuition regarding which areas one must mature as opposed to those areas in which sufficient progress has been made, and, by definition, a great deal of self-regulated learning.

Concluding Thoughts

It is clear from my experiences with the Global Perspectives Program that the institutions we visited in Switzerland, Italy, and France can boast of many highly-motivated students who are capable of mature and self-regulated learning. These students participate in social programs, take part in research projects, and, in the absence of formal university-sponsored award for teaching, reward their professors with teaching awards in which they take great pride. Of course, this is true in American universities as well. Despite the horror stories that US professors often share, we are all aware of the hard-working, dedicated students who make our classes more exciting, who help us with our research, and who dedicate themselves to improving the communities around them. Likewise, as in America, not all Swiss, French, and Italian students are as equally self-motivated. This is highlighted by officials at Université de Strasbourg and ETH who spoke of students' hesitance to speak with professors, even when they needed help.

The most important lesson that I learned from my experiences abroad is that we truly live in a very small world. Those of us in the worldwide (future) professoriate share the common goal of creating and sharing knowledge, whether through

our research, our outreach, or our interactions with students. All universities that we visited during GPP are capable of doing exactly that. American universities excel at educating incredibly large number of students. Swiss, French, and Italian universities excel at educating smaller numbers of more mature students. In doing so, we each celebrate our victories and we work to improve the shortcoming that we face. From my GPP experiences it appears clear that the best way that we can continue to produce highly motivated learners is to continue communicating with one another about the solutions to the challenges that we face. With communication, our universities around the world can continue to improve and to thrive.

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In his book entitled *A University for the 21st Century*, James Duderstadt (2000) wrote about the challenge of change, the need for transformation of the university and the social responsibility of the university. In keeping with this social responsibility, universities are social institutions with connections to and with society. The theme for 2013 Global Perspectives Program (GPP), “University and society: Meeting expectations?”, provided ample opportunity to explore the relationship(s) between the university and society. In our quest for understanding, GPP participants explored the expectations that society has of the university, the expectations that the university has of society, and the student perspective on these expectations.

Among the topics we focused on the many ways in which universities contribute to society and how society influences the university. We considered the different roles and responsibilities across institute type (e.g., research, comprehensive institution, Land grant, Liberal Arts), mission (e.g. discovery, learning, engagement), purposes (e.g., education, research, career development, global citizenship) and

geographic location or nation (e.g., Switzerland, U.S.). We also discussed how expectations might have changed over time and the evolving nature of these expectations especially in light of the numerous constituencies especially the students, faculty, stakeholders, and more. The discussions actually raised more questions than we could answer.

The essays contained in this GPP publication represent the reflections of the participants as they pursued their individual topics and the theme of “meeting expectations”.

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