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Future of Education
KTH Innovation Center

Examensarbete inom arkitektur, avancerad nivå 30 hp
Degree Project in Architecture, Second Level 30 credits
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As the globalization increases, the knowledge-exchange opportunities across institutional and discipline boundaries. Since traditional views on learning are rapidly changing, universities and learning environments in the entire world under a big change. Knowledge today is pervasive and complete in new contexts—both physically and digitally. A big part of learning and getting hold of knowledge can take place anywhere and at any time. The Internet and the product-related to it do not have to be on campus any more. Some educational facilities, like “Hyper Island” have already taken it further: opening up fully online-classrooms with students taking a series of courses at home with little or no interaction with the teacher or anyone else. I understand why so many people find this attractive, the flexibility is extensive, and getting to learn from specialists on the other side of the world at the push of a button is almost amazing.

However, I strongly believe that there is a need for human interaction in the learning process and that we should focus on a combination of both physical and virtual connectivity.

The use of digital facilitated learning (online-learning) blended learning) puts new demands on the physical limits of the University. The physical addresses in education facilities should try not to compete with the new digital opportunities, but rather act as a general living environment to promote the concrete physical world. The learning environments should create opportunities to establish all the connections and experiences that can’t be digitized.

For the general studies, I support incorporating the idea of “Wiped classrooms” - a teacher records his lecture and then puts it on the Internet for students to stream at the time that suits them. The physical meeting after the lecture is held afterwards can start at a higher level of knowledge and the need for one-way communication and interaction is reduced while the learning process develops into a dialogue with the teacher and other students in the social space, characterized by collaboration. By also implementing a mandatory course for all upper level students called “IP: Innovative InterProfessional Project” students from different faculties would be urged to come together to solve a case. More on that later.

Schools must allow individuals to learn at their own pace and in their own place, but just as important they must promote individuals to connect with each other. The exchange of information, knowledge, and ideas between people is critical both for learning but also for creativity and for generating new ideas. Shared area (such as large office landscape) is a better platform for collaboration, creativity and transfer of ‘best knowledge’ which is industry specific and vertically than a person working on his own.

The way of learning is individual to each student, and the environment best suited for one specific student might be the contrary to how the student coming to use the space afterwards would like it. By using personalization and adaptation of the general educational facilities I believe we can create a specific individual-based solutions that lead to higher wellbeing. For the student being able to execute some of the lecture/assignments at the place of their choice, for example at home or general spaces amongst friends, could be a real boost for students that does not feel confident in the classical setting of a classroom the new innovations does not have to happen in the confines of a lecture hall.

We have to work with the development of technology in terms of its physical surrounding, and generally we need learning environments that are smarter and more adaptable to the students and their academic needs. As the staff at KTH library knows, there is less need for large lecture halls nowadays, and a much greater demand for smaller rooms, more varied spaces for individual and group work. These spots may be within a building, but could be spread out across a campus. By adding these kinds of areas while incorporating some of the new end-up-coming technologies we can create environments that enable people to interact in different ways, within the campus but also all across the world.

Much of academic life in the future will also be online, and there will probably be pressure to get rid of as much physical space on campus as possible, and by doing that reducing maintenance and operating costs. There is a struggle ahead about finding a balance between creating physical places and using virtual environments, but that is also the most interesting thing about it: how do you do bring these two environments together?

The vast range of knowledge that exists in “cyber space” is the point not realized to its full potential. There is a true opportunity in learning from the best tutors even though they are located in another part of the world and the exchange of knowledge no longer to be “face to face” or even real time. Acknowledging the fact that having a physical person standing in front of you teaching you is very valuable, but most of the time, the most valuable person to teach you cannot be there at that location, hence -like acknowledging that having a classical lecture makes a huge difference in creating the possibility of a new way communication, but through modern media. I think we could get past that hurdle.

Can the same techniques be utilized to connect to other campuses, or the same networks, or other researchers? Is it a way to institute cultural dialogues and opening up for social interaction that is not held back by the distance constraints? There will probably always be a need for physical spaces that provide for different sizes of groups of students that need an area to carry out their work, however the emphasis must be on creating settings that encourage interaction between people, both for planned purposes as well as casual dialogue and sitting down for a cozy coffee.

The increased networking of institutions and the gradual harmonization of systems - meaning that the same level of knowledge is being reached across the world - allow students to choose their courses from a global education network, and build their own courses. Being Swedish and having the fortune to be able to study in such a project we should put more responsibility in the student itself with wanting to learn, and what they want to learn.

New technologies have brought about changes in approaches to teaching with standardized courses often delivered online, different use of classroom space, more small seminars and interactive discussions, and more time spent with students on their individual projects.

International collaborative research has been strengthened by the dense networking between institutions, driven by the availability of open and open knowledge. At the same time, technology-driven networking allows institutions in developing countries to benefit from advances in knowledge. Academics and students in high education institutions with fewer resources now have remote access to research and teaching tools previously only available in well-resourced institutions. Research data is available online in real time; new data sets can be re-used by academics and students for new research, simulation, computing and visualization tools are accessible to all.

**IP PROJECT: INNOVATIVE INTERPROFESSIONAL PROJECT, YEAR 3-5**

A mix of students from different faculties/disciplines and ranging from bachelor’s to master level - students form teams according to interest and work collectively to solve a problem. Coaches can be located at the innovation center, or be a representative from a collaborating company.

- Getting to work over local boundaries teaches you how the future employment will grow.
- Gives you an insight to what your work or role can be and how early stage can help improve your career forward.
- Increase volume of student; save the pass-through ratio

The coaches/mentors provide expertise, are a support system and encourage innovative thinking.
Make KTH the most prominent higher education facility in Europe

- **International**
  - Increase global visibility and recruit talented students from all over the world
  - Attract a diverse student body
  - Improve the school's reputation internationally

- **Better academic results**
  - Increase research output and attract top researchers
  - Improve teaching quality and student performance

- **Better connections between students and future employer**
  - Encourage collaboration and networking within the university
  - Enhance career services and job placement opportunities

- **Better physical environments**
  - Improve the physical facilities and learning environments
  - Enhance the student experience and satisfaction

- **Social isolation**
  - Address issues of social isolation among students
  - Foster a sense of community and belonging

- **Mentoring and career support**
  - Implement mentorship programs and career guidance services
  - Support students in their professional development

Today's students are increasingly taking part in lectures from around the world online and learning on their laptops. These kinds of student do not utilise the facilities as well as those who come to KTH. This has become a cultural dilemma to get the best students and staff in both different fields and on the advanced. The idea of the teacher has gone from being the one who systematically process knowledge to be a coach in the search for information. Students are expected to learn outside the classroom and become a concept and learning environments is steadily approaching the layout of work environments.

I decided to work with KTH since I had a range of collaboration with students from other faculties which gives me a better insight into what local students need. Having a student at the school itself gives me a greater opportunity to improve the decision-making processes.

The site is chosen for its possibility to connect underground to the subway, as well as for the qualities at the future main area of what I call the Modern Campus. It is an expensive area between the university and Djursholm station.

In the document “Vision 2027” KTH informs the public about the thoughts and expectations of the future at KTH. In collaboration with these projects, I have developed a plan to be able to make them a reality, adapting to the decisions already made for the future. With my vision about implementing a renewed pedagogy in the higher education system a demand for inspiring meeting places where community, business and academia comes together arises – something the Innovation Center can facilitate.

KTH different premises are spread over a large geographical area and a large part of the teaching takes place on booked premises. The study environments have been particularly
THE BUILDING IN TERMS OF (COMPUTER) COMPONENTS

- The Core (Motherboard, Processors)
  - FAST vertical connections
  - Space for PLANNED meetings
  - PRIVATE spaces
  - DARK/Artificial lights
  - Focus on INTELLECTUAL work

- The periphery (Circuits + chassis + screen)
  - SLOW vertical connections
  - Space for SPONTANEOUS meetings
  - PUBLIC spaces
  - BRIGHT/Daylight
  - Focus on PHYSICAL work

The overall building will communicate that KTH is an innovative university that competes with some of the top European colleges.

The design concept is the idea of "to see and being seen" for having the flow in the building visible. From early on in the process I have had the vision of broadcasting the people and their ideas, projecting them on the building. By having two media walls, one with projector and on with LED towers, I can achieve an ever-changing façade. These can be sensor run or digitally programmed to be able to respond to changing conditions.

And give focus to - what is happening inside the building. The transparency of the building will help to attract new students and cooperating partners. The building will accommodate KTH leading expertise and showcase it to interested parties: students, teachers, researchers and industry. The building not only contains media, it should project it expressed by. Beyond the fact that you can see into the building through the glazed façade to take part of the movement going on, some of the information from the inside should pass through to the outside spreading the knowledge to the rest of the campus.

By communicating what is going on inside there is a direct link of communication between the inside and outside, making the building a showcase of the innovation ideas being formed while in a functional way being able to enter inside the building. The building should basically be a giant informed area of knowledge, open for everyone to enjoy.

THE PARTI: THE GOAL OF MY PROJECT

- Strengthen KTH’s identity and brand, with a focus on international reputation
- Broadcast research and studies conducted at KTH both locally/internationally
- Strengthen the link and encourage the interaction between the corporate world and the students/researchers
- Open up the limits of education by welcoming external flow of knowledge (network based learning)
- Create vibrant meeting areas for interaction across group affiliation/faculty limits
- Increase the proportion of students graduating - both "on time" and overall
- Attract students to partly be on campus
- Make the campus into being an active social workplace preventing bad health.
- Convince the need of self-studies in the student's field of specialization.
The basement floor is designed as a flexible area that should complement the areas in surrounding KTH facilities, or the back three of. With the move of the Architecture faculty to campus the need is even bigger. By using movable partitioning walls on the basement level as well as on the level above the multi area can be used separately from the rest of the building. For acoustic reasons, loud events such as parties or concerts should be reserved for evenings/weekends. The event space has a separate entrance directly from the main point of entry of the building on ground floor.

In the west part of the building an activation facility is added, with squash courts, table tennis, climbing and locker rooms. This facility can be directly reached from the underground pass from the trains. Evacuation can also be done through the senior building in the south up through the main building.

The main focus point of the basement is the computer/server hall which is remained open glazed for the purpose of showing the high-tech specs of the building.
Dear Amanda,
This is a letter of encouragement! Two random architects think your project is great! Good job! Good luck in the future!

Out of all the thesis topics we seen yours is the most interesting.
References:

Interviews:
- Stenbom, Stefan; Universitetsadjunkt (lecturer), Teknikdidaktik (Technology Didactics) department KTH. Interview 2013-12-10.

- Högfeldt, Anna-Karin; Universitetsadjunkt (lecturer), Högskolepedagogik (Higher education pedagogy) department KTH. Interview 2013-12-18.

- Lygonis, Donnie; Affärsutvecklingscoach (Business Coach), KTH Innovation. Interview 2014-03-02

Literature:


