

# Students' usage of social media as a supplement to their studies

A comparison between two universities in Sweden and Argentina

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and Communication**

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## **Abstract**

Students' usage of social media for their studies has increased enormously over the last years. They use these social media to interact with other students, work on their projects and much more. (Roblyer et al. 2010a)

Most universities have their own platform for file sharing, communication and even other school related tasks available for both students and teachers. However, students still turn to other media for doing their schoolwork. The purpose of this study is to investigate how satisfied the students of two universities, KTH in Stockholm and UCA in Buenos Aires, are with their school platforms, and to find out the reasons behind why they turn to other media as a supplement for their studies.

In order to achieve substantial results we chose to make a questionnaire and send it to students from both universities, as well as having one focus group in each university. The results of the study showed that these platforms needed to be improved in some aspects in order to get more satisfaction from the users and fulfill their needs. However, students will still be using social media and other sorts of media for communicating with each other and doing school related work, since social media has become a big part of their everyday life.

## **Sammanfattning**

Studenternas användning av sociala medier för sina studier har ökat enormt under de senaste åren. De använder dessa medier för att interagera med andra studenter, arbeta med sina projekt och göra mycket mer. (Roblyer et al. 2010a)

De flesta universitet har sin egen plattform för fildelning, kommunikation och även för att göra andra skolrelaterade uppgifter tillgängliga för både elever och lärare. Men eleverna vänder sig fortfarande till andra medier för sitt skolarbete. Syftet med denna studie är att undersöka hur nöjda eleverna i två universitet, KTH i Stockholm och UCA i Buenos Aires, är med sina skolplattformar, samt att ta reda på orsakerna bakom varför de vänder sig till andra medier som ett komplement till sina studier.

För att uppnå betydande resultat valde vi att göra en enkät och skicka den till studenter från båda universiteten, samt ha en fokusgrupp vid varje universitet. Resultaten av studien visade att dessa plattformar behövde förbättras i vissa avseenden för att få mer tillfredsställelse från användarna och uppfylla deras behov. Däremot kommer eleverna fortfarande att använda sociala medier och andra typer av media för att kommunicera med varandra och göra skolrelaterat arbete, eftersom sociala medier har blivit en stor del av deras vardagsliv.



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# 1. Introduction

*This section explains the background and the purpose of this study. It introduces the platforms that we have researched about, as well as the universities that the platforms belong to, followed by the main research question and delimitations.*

## 1.1 Background

Learning Management System, LMS, is a denomination for online platforms that provides different services for students, professors and administrators to enhance learning (McGill & Klobas 2009). LMS is a great tool for students and teachers of higher education to have a good communication with one another and be able to perform different tasks. One of the biggest advantages of LMS is the fact that it can be used without being restricted to geographical borders, which is very important nowadays when numerous students spend several months or years of their education studying abroad.

Even though these LMSs exist, social media such as Facebook and Twitter, and even other sorts of media such as Dropbox and Google Drive, have been a great help and very useful tools for the students in the past years. Many studies have shown that students of higher education use these social media in order to communicate with their project team or classmates through for example creating groups and events on Facebook and chatting with each other, or sharing files and working on reports online. (Roblyer et al. 2010b)

## 1.2 Purpose

The purpose of this report is to analyze how students of higher education use learning management systems together with other sorts of media while doing their schoolwork and projects. We will investigate if and what is lacking in these learning management systems that make students turn to social media as a supplement to their studies. The whole project is a comparison between three different platforms belonging to two universities, one in Sweden and one in Argentina. Researching on two different countries helps us get a broader idea and a wider range of answers to our questions from different aspects.

In addition to what is mentioned above, we want to gather the functions that make social media and other sorts of media a better and more attractive choice for students to communicate and work on their projects. With help of that, we will find solutions to improve these learning management systems in order for them to gain more satisfaction from the users.



## 1.3 Problem Definition

We have formulated a main question as a guideline for our project, which will always be in focus throughout the whole process, followed by some sub queries that will help us reach a conclusion.

Our **main question** is:

*What is missing in the learning management systems that makes students turn to other media as a supplement to their studies?*

Our **sub queries** are:

*Are there any cultural differences between Argentina and Sweden that could affect students' usage of LMS and social media to support their studies?*

*&*

*How can we improve Bilda, KTH Social and Lirweb so that they become more useful for the students and fulfill their needs?*

## 1.4 Royal Institute of Technology (KTH)

The Royal Institute of Technology is the largest and oldest technical university in Sweden. KTH was founded in 1827 and the main campus is located in central Stockholm since 1917. The School of Information and Communication Technology is located on the Kista campus, and there are additional campuses located in Haninge, Flemingsberg and Södertälje in the southern metropolitan area. There are a total of almost 14,000 undergraduate students and more than 1,700 active postgraduate students at KTH. (KTH 2012)

KTH uses one main LMS, Bilda, for students and professors, together with a social network called KTH Social.

### 1.4.1 Bilda

Bilda is a net based learning management system that KTH uses. Bilda is basically a part of PING PONG, which is a web-based system for knowledge development. In Bilda there is a variety of features, including:

- Learning environment where courses and other activities are going on
- Tools for communication
- Document management
- Creating content material
- Statistics
- Management and skills management

Students can access the system using their unique username and password, which was distributed to them through the university administrative unit. (Lab 2013)

The picture below shows the principal page after logging in to Bilda. On the top navigation bar there are options for *schedule*, *courses*, *program*, *groups* and *services*. On the left toolbar there's a list of the courses that the student is registered to that use Bilda for their communication. In the center there are two links for accessing *KTH e-mail* and *My Pages*, which contains the courses and grades that the student has been taking during his/her whole study time at KTH. On the right there are some tips and guides on how to use PING PONG.

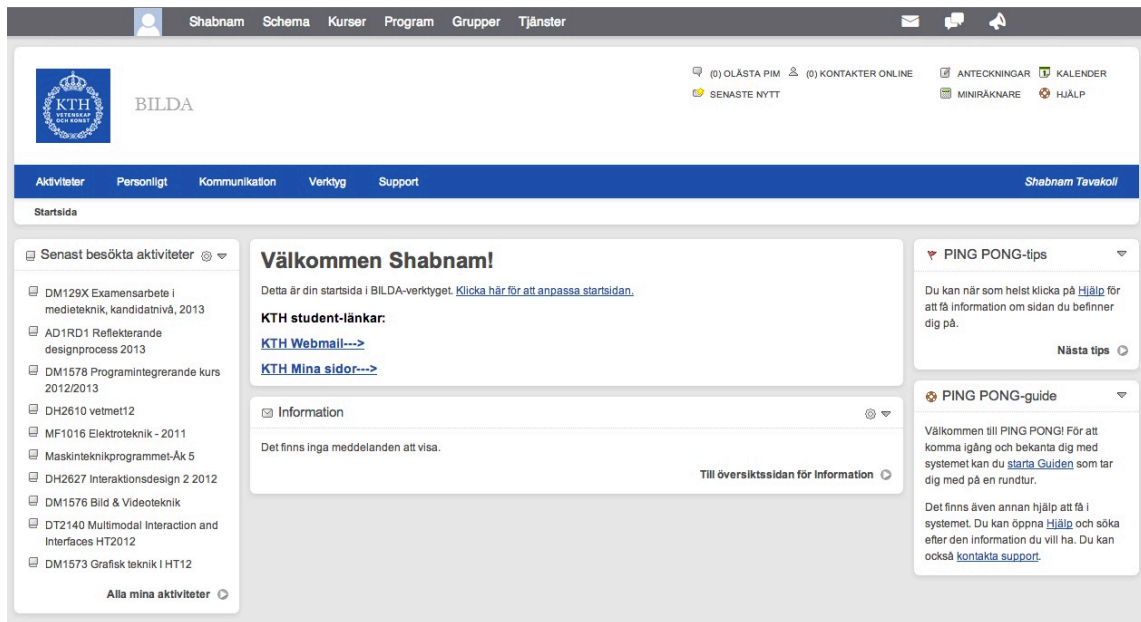


Figure 1. Print screen of principal page after logging in to Bilda.

## 1.4.2 KTH Social

KTH Social is a social media under development, which is available through the Internet for all registered students and course instructors at KTH (Royal Institute of Technology). The service was started and developed by Virtual Campus as an official tool for students and teachers at KTH. According to Virtual Campus, KTH Social is a web platform where "all the teachers and students can quickly and easily communicate about their courses and studies and easily find information in different contexts". (Gustavsson & Kalcidis 2011)

The focus here is mainly in the study purposes. Frida Norre, head of user requirements in Virtual Campus, mentions that:

*"KTH Social is not intended as an "internal Facebook" and the point here is not primarily to be private and make new friends, but rather to create opportunities for a better dialogue between students and teachers in different courses"*

Students can access the system using their unique username and password, which was distributed to them through the university administrative unit. (Gustavsson & Kalcidis 2011)

The picture below shows the principal page after logging in to KTH Social. The top navigation bar is basically the same as the one in Bilda, showing *schedule*, *courses*, *program*, *groups* and *services*. On the left there's a list of the active users and popular tags. On the right side there are tips for teachers and students, as well as a description of courses and groups. KTH Social has a different interface than Bilda, which is more similar to a social network rather than a LMS.



Figure 2. Print screen of principal page after logging in to KTH Social.

## 1.5 Pontificia Universidad Católica Argentina (UCA)

Pontificia Universidad Católica Argentina, UCA, is a private catholic university with campuses in Buenos Aires, Mendoza, Rosario and Paraná. UCA was founded in 1958 and the main campus is located in the modern neighborhood, Puerto Madero, in Buenos Aires. The university has more than 20,000 students spread over. There are ten major faculties teaching Humanities, Psychology, Economics, Agriculture, Social Sciences, Law and Canonical Law, Engineering, Theology, Medicine and Musical Arts. (UCA 2013)

The engineering faculty at UCA uses an LMS called Lirweb, which is the platform that we have been researching on.

## 1.5.1 Lirweb

Lirweb is a Moodle based LMS used by the engineering faculty at UCA. Moodle is an open source, free web application that UCA used to build Lirweb. Students can access the system using their unique username and password, which was distributed to them through the university administrative unit. Lirweb has a variety of features, including:

- Documents that professors add for different courses
- Sending messages to other users
- Enrolling in all courses on Lirweb, not only the ones the students were accepted to.

The following picture shows the principal page after log into Lirweb. On the left toolbar the functions show *Users Online* and *Messages*. The access to the courses was through different *Categories* in the middle under the welcome message and the picture. The categories consist of different faculties at the university, and by clicking the link it takes the user to the programs within the faculties, and from there the students can choose the courses they studied. After the students had enrolled in their courses a shortcut to their courses would be found at the top left, by clicking the vertical text *Navigation*. To the right on the first page there is a calendar and some notices.



Figure 3. Print screen of the principal page after logging in to Lirweb.

## 1.6 Delimitations

Given the fact that this project is a comparison between two universities in Argentina and Sweden, our target group is the students of KTH and UCA. To be able to compare the universities and get the most valuable results for our research, we decided to focus only on engineering students. This means that our target group was narrowed down to students at the engineering faculty at UCA and all the students at KTH.

The platforms that we are going to make the research on are Bilda and KTH Social at KTH, and Lirweb at UCA. Furthermore, the media that will be investigated are social media such as Facebook and Twitter, and other sorts of media such as Dropbox and Google Drive. We are going to describe the concepts of the different media that we refer to in this thesis in the next chapter.

## 2. Theory

*This chapter is covering the different theories based on the results from the literature studies in the beginning of the research for this thesis. We will start with describing the central concepts that we are going to use in this report, followed by the central theories. The concepts and theories will give the reader the necessary background information to understand the results, discussion and conclusion of this thesis.*

### 2.1 Central Concepts

*In this section we will describe the central concepts that we will use throughout this thesis. We will give a short description of the concepts to give the basic knowledge needed for further reading. Our use of the concepts and what we refer to will also be presented in this section.*

#### 2.1.1 Learning Management System (LMS)

Learning Management System, LMS, is a denomination for online platforms that provides different services for students, professors and administrators to enhance learning (McGill & Klobas 2009). Bilda is the LMS that KTH used and Lirweb is the LMS that UCA used.

#### 2.1.2 Social Networking Site (SNS)

A Social Networking Site, SNS, is an online social network, a social media, where the user can set up a profile to connect and interact with other peers. Users can add information to their profiles and share information with other users, such as links, comments, photos etc. Some SNSs connect users based on geography, interests, education etc. Some examples of SNSs are Facebook and MySpace. (Boyd & Ellison 2007)

When we mention SNS or social media in this report, we refer to a group of social networking sites such as Facebook, Twitter, Google+ etc.

#### 2.1.3 Platforms

When we refer to *platforms or online platforms* in this thesis, we either mean LMS or SNS.

#### 2.1.4 The Cloud

When we use the phrase *the cloud*, we basically refer to the Internet. We will use this concept when discussing or describing online storage. By storing files and documents in the cloud, we mean having files and documents accessible online from several devices.

## 2.1.5 Social Networking Software

Social networking software is a broad definition of communication and collaboration tools in form of online software and applications, where users can exchange information and files.

The social networking software we will include in this thesis are listed below.

- *Dropbox* - Storage in the cloud, used for sharing files and documents.
- *Google Drive* - Collaboration tool for online storage, including a real-time social writing platform where users together can edit and share documents.
- *Skype* – Messenger used for instant messaging (chat), video-calls and conferences.
- *E-mail* – Online service for sending digital messages to one or more recipients.
- *WhatsApp* – Application for smartphones, which lets the users send instant messages for free as long as the phone is connected to Wi-Fi or a mobile network.
- *Asana* – Collaboration tool for organizing and keeping up with group projects.
- *Doodle* – Tool for scheduling meetings and other appointments.

## 2.2 Central Theories

*We build our thesis around some central theories that are built up by some of the central concepts mentioned in the previous section. We will also describe some theories about the cultural differences between Argentina and Sweden.*

### 2.2.1 E-learning

E-learning, or electronic learning, contains a wide range of technological tools which all serve to support education. These tools can be programs, web-based applications, websites, objects etc. Some authors include CD-ROM, audio- and videotape, TV etc. into the definition (Moore et al. 2011). E-learning in this thesis refers to the part of learning that contains tools that support learning *online*. In this case that includes LMS, SNS and online collaborative applications.

### 2.2.2 Web 2.0

Web 2.0 consists of websites and web applications that, compared to Web 1.0, allow users to share information or material that they have created. Web 2.0 is developed so that people without any programming skills can write and publish information online without having to create a website (Maloney 2007). The object for a Web 2.0 website is the user. Technical innovations such as single identity, web API, feeds and variable licenses make Web 2.0 services reach out to users in a wider range than Web 1.0 websites (Alexander 2004). Web 2.0 is constantly developing with focus on new innovations and interaction.

The most significant part of Web 2.0 is social software, for example Facebook and MySpace. (Cormode & Krishnamurthy 2008)

### 2.2.3 Cultural Differences

There have been a lot of studies and researches done on e-learning for higher education and also how students of higher education use SNS as a valuable resource to support their educational communications and collaborations with the faculty. Most universities have their own LMS for the teachers and students to use and communicate with one another. In some universities however, more traditional technologies such as email are common to use rather than collaborative systems and other e-learning tools. There are many factors such as cultural differences, usage of technology in a country and many more that cause students and teachers of some countries to have more use of e-learning and some countries less. (Hrastinski et al. n.d.)

The following factors have been researched in previous studies:

*Power distance* - Which is defined as “*the extent to which the less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally*” (Hofstede 2001). The effect that this concept has on e-learning implementation is that countries with a higher degree of power distance would implement one-way teaching and the education would be very teacher-centered, whereas countries with a lower degree of power distance would implement two-way teaching and the education would instead be student-centered. Argentina has a higher degree of power distance in a scale from [1-120] (value index = 49) compared to Sweden (value index = 31), which means that Argentina has a more teacher-centered based education form where the implementation process would be governed by the university management (see figure 4). (Keller et al. 2009)

*Uncertainty avoidance* - Which is defined as “*the extent to which members of a culture feel threatened by uncertain or unknown situations*” (Hofstede 2001). When this concept is applied on e-learning education, it shows that in countries with a higher degree of uncertainty avoidance, the resistance to the introduction to e-learning is higher and the students prefer to have a teacher-centered and structured education. In Argentina the degree of uncertainty avoidance (index value = 86) is higher than Sweden (index value = 29), which means that Swedish students and teachers might have an easier time adapting themselves with new technologies in education and are less depended on a strictly structured system governed by teachers (see figure 4). (Keller et al. 2009)

*Individualism* and *Collectivism* are two factors that make big differences on how people of a society are used to work and communicate with each other. Individualism stands for a society where the individuals are not depended on each other that much, and the goal of an individual is of high importance, thus they value independence and self-reliance (Wood 1972). Collectivism is the reverse of individualism, where the orientations stress the importance of unity within social groups, and in some cases, the priority of group goals is chosen over the individual goals (Wood 1972).



Comparing Sweden and Argentina in this context, it is shown that in countries with a high level of individualism (Sweden, with an index value of 71), students are expected to be active in online discussions and frequently ask questions/comment in the e-learning environment, whereas in countries with a low degree of individualism (Argentina, with an index value of 46), students are not expected to be active and speak up in the same environment. (Keller et al. 2009)

The chart below shows how Argentina and Sweden differ in cultural factors.

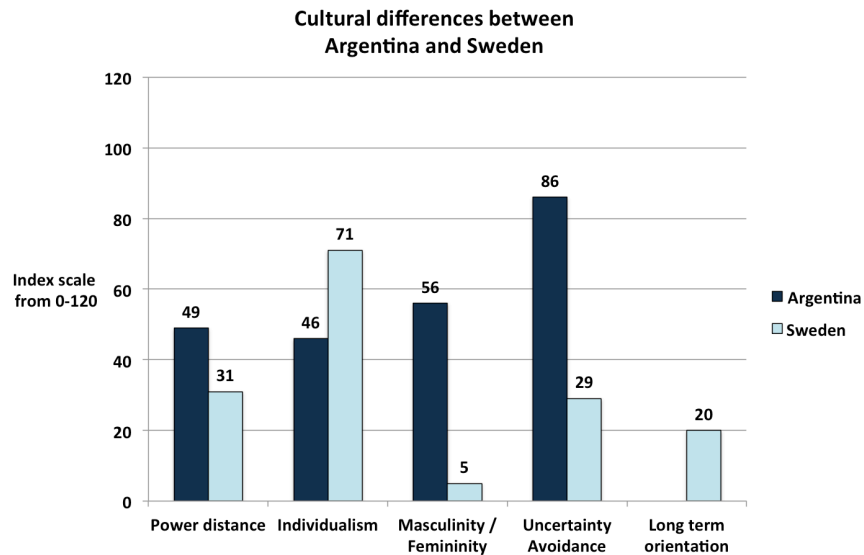


Figure 4. Comparison of Sweden and Argentina in cultural factors. Data for the diagram collected from <http://geert-hofstede.com/>

## Adaption to innovation

There are several cultural factors that differ Sweden and Argentina. One on these factors is the ability to adapt to new innovations. In 1994 the Swedish Prime Minister Carl Bildt sent the first e-mail between Governments to Bill Clinton and the same year the Swedish Government appointed the IT-commission with the mission to become a world-leading nation within this new digital age. (Goldberg, Larsson 2012)

The Global Innovation Index (GII) is an index showing a country's ability to integrate innovation into their political, business and social spheres. Sweden was ranked second with the score 64,8 (out of 100) and Argentina was ranked seventieth with the score 34,4 on the GII in 2012. (Dutta 2012)

In figure 5 we can see a steep rise in Internet users in Sweden between 1996 and 1997, and later also in 2002, which was about the same time as the start of Web 2.0 and the introduction of websites with user-generated content.

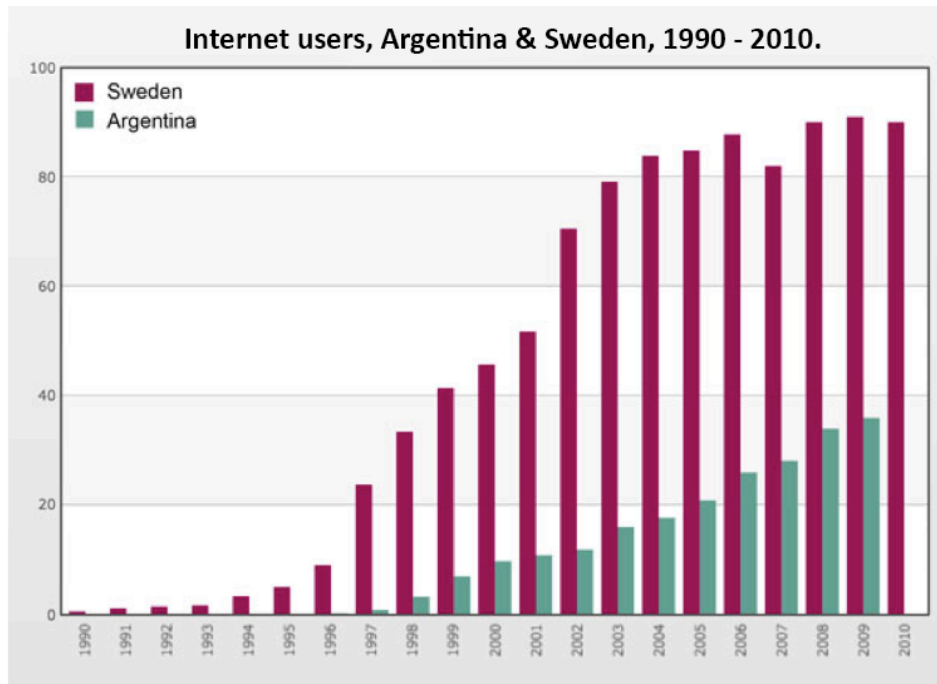


Figure 5. Internet users in Sweden and Argentina 1990-2010. Users per 100 inhabitants. ([www.globalis.no](http://www.globalis.no))

# 3. Methodology

*This section describes different methods that were used to carry out the investigation and how each method was approached. After the literature study and gathering more knowledge from previous researches, we sent a questionnaire to students of both universities, and later on had one focus group in each university.*

## 3.1 Literature Studies

Gathering data through research on the Internet plays an important role not only in keeping researchers up-to-dated with the development across the world, but also in providing access to data which can inform literature studies to establish content validity in their own research (Cohen et al. 2000).

We have mainly searched for literature online using Google Scholar and KTH Primo, a search tool that provides access to KTH library's online and print collections. To get relevant literature we have used the search phrases and terms: "e-learning", "online learning platform", "learning management system", "Web 2.0", "social networking sites and higher education" and "culture's consequences". We carefully chose our literature from appropriate websites and journals.

The purpose of the literature study was among other points to find out the cultural reasons that could affect a society in terms of using different methods when it came to communication and effectiveness, as well as other aspects of usage of social media with the studies.

## 3.2 Questionnaires

Questionnaire is a useful tool for collecting survey information, often providing numerical data and making it possible to be administered without the presence of the researcher (Cohen et al. 2000).

A questionnaire, which was written in English and translated to Spanish, was sent to students of KTH and UCA. In Stockholm we sent the questionnaires online through e-mail and in Buenos Aires they were printed and distributed to the students of the engineering faculty of UCA during their break. The reason behind this was that it was not very easy to get access to the contact information and e-mail addresses of the students at UCA, so it was easier to just go to the classrooms and ask them to fill in the surveys while they were on a break.

The purpose of the questionnaire was to ask the students about their usage of Bilda, KTH Social and Lirweb, as well as other types of media for their studies. The questions were formed in both closed-ended questions such as "Are you an exchange student?" and open-ended questions such as "For what purpose do you usually use the online platform "Lirweb"?". Most questions were open-ended questions, which helped us gather more qualitative data since the respondents had the possibility to provide even more answers if they wanted to.

Out of around 100 questionnaires that were sent to each school, we got 50 answers from KTH and 92 answers from UCA. 45 questionnaires at UCA were given to students that we did not know had not used Lirweb yet as they had just begun their first semester at the university. Therefore we decided to remove these from the result and give another 45 questionnaires to students in years four and five instead.

A questionnaire could take a long time to prepare in all stages regarding the formulation of questions, pilot testing, revision and finalization. Moreover, a text format of the questions and the lack of ability of the respondent to ask about the interpretation can lead to misunderstanding and confusion. An advantage of this method is that it is relatively easy to reach out to many people and gather quantitative data. (Cohen et al. 2000)

### **3.2.1 Selection**

It is very important to select the right target of respondents for the questionnaire. Respondents must be able to understand the questions in the way that the researcher intends, have the information needed to answer them and be actually willing to answer them (Cohen et al. 2000). Since the questions in our questionnaire concerned the usage of the three different platforms Bilda, KTH Social and Lirweb, we wanted to have as many students as possible that have actually used these platforms.

## **3.3 Focus Groups**

Two focus groups were carried out after we had sent the questionnaires, in order to gather more qualitative data for our project. The purpose of the focus group is that it explores a few people's judgments and feelings in great depth, and makes it possible to understand what the users think and feel (Rubin & Chisnell 2008).

Before the focus group is held it is important to prepare the questions or tasks that are going to be used, as well as how to gather all the data through recording or taking notes from the event (Cohen et al. 2000). We had made an agenda containing three different parts for the focus group. In the first part there was an open discussion about LMSs and what advantages and disadvantages they have. On the second part the students had to write down which functions they wanted to have on an optimal LMS, using papers and post-its. After that each of them got the chance to explain for what purpose they wanted to use each function. On the last part, names of several social media and other sorts of media were written on a whiteboard, and the students had to write down which of those media they used and explain for what purpose, again using papers and post-its.

Focus groups usually operate more successfully if the participants are relative strangers rather than friends. The number of people involved is much less than a survey and the data that is gathered from a focus group is qualitative data, which may be difficult to analyze. Another point to take into account is that the group dynamic could lead to non-participation by some members and more power from others, which means that focus groups require competent facilitation and management by the researchers. (Cohen et al. 2000)

### **3.3.1 Focus Group at UCA**

The first focus group was held in Buenos Aires with help from a native Spanish speaker. Only one of us was present in that focus group and a mobile phone was used to record the event. The focus group took nearly two hours with some small breaks in between. There were six students from the engineering faculty at UCA who participated in the focus group.

As Lirweb at UCA was not used as often as Bilda at KTH, it was difficult to get fruitful results from the questionnaires that were sent to the students there. Therefore, we thought of having a focus group where students who actually had used the system could discuss about that and share their opinion, as well as explaining about their usage of social media.

### **3.3.2 Focus Group at KTH**

The second focus group was held in Stockholm approximately five days after the first focus group. Five students participated in this event, whereas two of them were exchange students. Only one of us was present at the focus group and a laptop was used to record the event. The language spoken during the session was English because of the exchange students, but that was not a problem since everyone felt comfortable about speaking English. The focus group took nearly two hours with a small break in between.

### **3.3.3 Selection**

The selection of the students we wanted to have in the focus groups was based on how many students had used the LMSs. At KTH almost all students had used one of the platforms Bilda or KTH Social. At UCA however, there were lots of faculties that did not use the platform Lirweb and instead used other sorts of media for communication. Therefore, students from UCA were selected only from the engineering faculty, but students from KTH were selected from different faculties in order to have a broader range of students attending courses that used different platforms.

# 4. Result

In this chapter we are going to present the results that we have gathered from the different research methods that we used. The results are gathered in both qualitative and quantitative form, from the questionnaire that we have sent and the focus groups that we have held.

## 4.1 Questionnaire

A questionnaire was sent to students at KTH and UCA. In this questionnaire we asked general questions about how often and for what purposes they used schools' internal platform(s), as well as what other types of media they used aside from that and how they helped them with their studies. The questions can be found in the appendix.

The following table shows the amount of the students who answered the questionnaire from each university.

	KTH	UCA
<b>Total:</b>	50	92
<b>Female:</b>	28 (56%)	28 (30%)
<b>Male:</b>	22 (44%)	64 (70%)
<b>Amount of exchange students:</b>	6 (12%)	4 (4%)

Table 1. Amount of students answering the questionnaire from both universities.

Figure 6 (below) shows that students at UCA logged in to Lirweb more often compared to how often students at KTH logged in to both Bilda and KTH Social. 80% of students at UCA logged in to Lirweb every week, whereas 40% of students at KTH logged in to KTH Social and 50% logged in to Bilda every week.

### Students' login frequency on the platforms

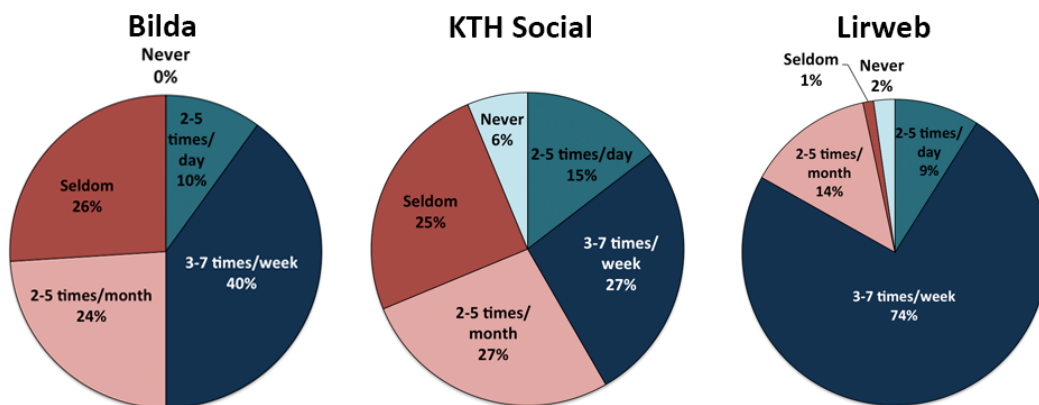


Figure 6. Diagram of how often students at KTH & UCA logged in to Bilda, KTH Social and Lirweb.

Figure 7 (below) shows that all three platforms were mainly used for checking course information, schedule, etc. 80% of students at KTH used Bilda for handing in assignments and checking deadlines, compared to Lirweb with only 40%. Some students used the platforms to interact with professors, share files and interact with other students. The chart also shows that Bilda was used in a wider range for joining project groups and group discussions compared to Lirweb and KTH Social. The ones who answered *other* did not specify what.

## Students' purposes for using the online platforms

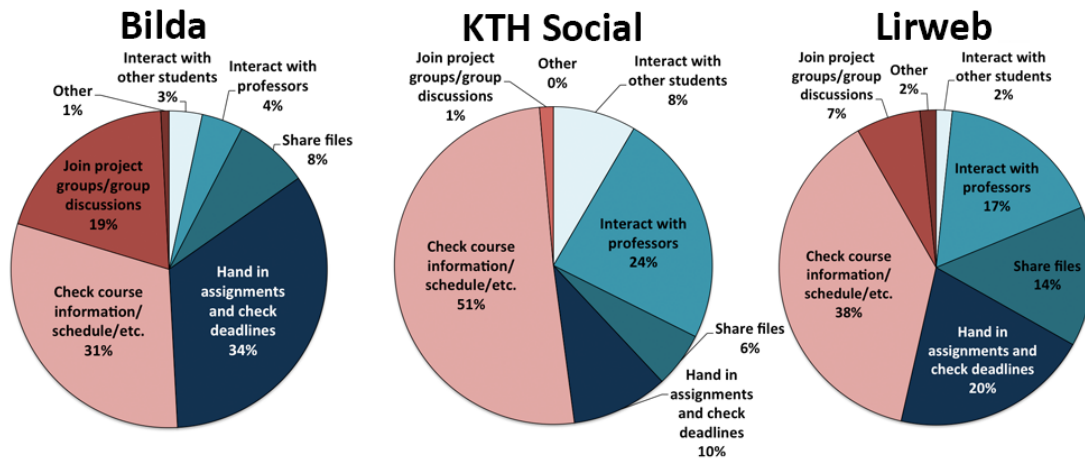


Figure 7. Diagram of the purposes for what students used Bilda, KTH Social and Lirweb.

Students at UCA and KTH used SNS such as Facebook and Twitter almost as much, but what clearly differed KTH from UCA was how many students used Google Drive and Dropbox. KTH students used these two platforms much more often compared to UCA students. Students who had answered *other* from KTH also mentioned platforms such as Asana, Doodle, Skype, SMS, e-mail and other online project management systems, while students at UCA only mentioned e-mail and WhatsApp (see Figure 8).

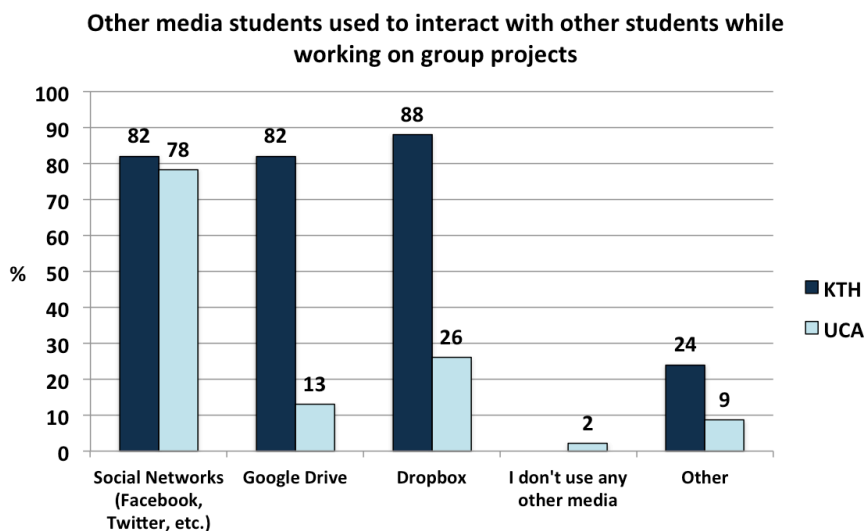


Figure 8. Graph showing other type of media that the students used while working on group projects.

Figure 9 shows the usage of the functions that were used in different media mentioned in Figure 8. Chat function was more used by students at UCA, while all other functions were more used by KTH students.

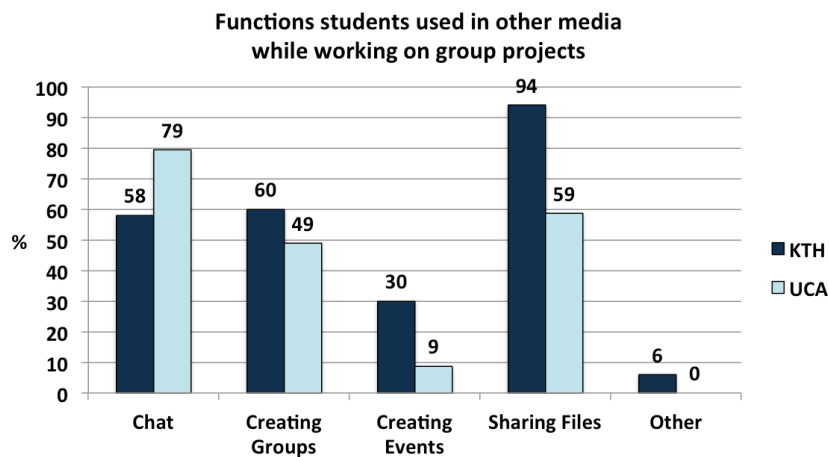


Figure 9. Graph showing the functions that students mostly used in the media displayed in Figure 8.

## 4.2 Focus Groups

Two focus groups were held in total, one at UCA and one at KTH. The focus group at UCA was held in Spanish and the one at KTH was held in English. About five to six students studying from the third to the fifth year participated in the focus groups.

### 4.2.1 Focus group at UCA

#### Part 1 - Learning Management System, LMS

All the participants of the focus group used Lirweb and they were all unanimous in the fact that it is a useful tool that helps in their studies. They all logged in to the platform to find information about the courses they were taking every semester. The participants explained that some professors preferred other ways of communication with the students, and instead used a specific e-mail for that class. The username and password of that e-mail would be provided to all students and they could access the material through logging in to it. Two of the students also had a professor in one course that used another online platform called *E-learning* for his classes. Students all logged in to Lirweb frequently, normally a couple of times per week. The normal usage of the platform was described in this way: They logged in to Lirweb frequently (at least one time per day) in the beginning of the semester when the courses started, in order to take part of all the information that the professors had uploaded there. Then the frequency would dip down and logins would happen less frequently (approximately 2-5 times per week), and this time mainly to download material for upcoming classes. When the midterms and final exams were approaching, they used Lirweb more frequently again to go through all the information from the lessons, lectures and other information from the professors.



## Part 2 - Brainstorming with post-its about LMS

During the second part of the focus group the task was to write down functions and tools within four different categories that they would like to have in the ultimate LMS. The given categories were:

- Automatic functions
- Collaboration tools
- Learning material
- Communication channels

The functions that the participants wanted to have in each category are described in the table below.

Communication channels	Learning material	Automatic functions	Collaborative tools
Virtual classes	Pdf preview of the documents	Course registration	Access to the administration of the courses
Video conferences	Old midterms and final exams	Disenrollment from the courses	Dates of the exams
Public communication		Automatic inscription in the courses that they were studying	
Improvement of the dialogs and responses from the professors			

Table 2. Functions that students at UCA wanted to have in their LMS.

Two participants were very interested in having online classes because they could stay at home and do the same work from there. The other ones that were interested in online classes wanted this function in case they for example did not have the possibility to go to the university one day. In such a case having online classes would avoid them from missing the class. Another similar option that came up during the discussion was to film all the lectures and classes and upload them on Lirweb in order for them to be accessible from home. The participants also mentioned that at UCA sometimes the professor does not show up in the lecture, and to solve that problem they wanted online classes in combination with other information on Lirweb.

By automatic functions we were thinking questionnaires and multiple-choice tests online, but the participants associated that with something else and they all wanted automatic registration in the courses they were taking, instead of having to enroll themselves in every course. However, after a short description about our thought, they were all unanimous in not being interested in for example doing a multiple-choice test online.

### **Part 3 - Brainstorming with post-its about other types of media**

The third part of the focus group was about how the students used other types of media and how/if they wanted to include some functions in Lirweb. The media channels Skype, Facebook, Dropbox, Google Drive, Doodle, Google+, E-mail, Twitter, Instagram and LinkedIn were written on the whiteboard and the participants were supposed to write down which ones of them they used and for what purpose. They could also add any other media that wasn't mentioned on the whiteboard, if they used them.

All participants used Facebook and Skype in order to keep in touch with their friends and family. Three of the participants used Twitter and Instagram for basically the same purpose. Dropbox, Live groups, Google drive and Skydrive were only used by one or two participants, and for working on a group projects. In general most participants used e-mail when sharing documents during the projects. None of the participants used LinkedIn because of the reason that they were not working yet.

We asked them if they would be interested in having social media built into Lirweb in order to make it more accessible and easier to connect and receive information, because they were logged in to Facebook all the time. Their response to this question was a clear "no". They all wanted to separate their social life from their university life. However, when they were asked if they wanted to have functions such as document sharing through having a Dropbox-widget built into Lirweb, their response was more positive. The possibility of having videoconferences with the professors and being able to ask them questions and get answers straight away through Skype was a popular idea among the participants.

We asked them what Lirweb would need to get the students to log in to it more often. All participants wanted the information on the platform to be more accurate and get updated frequently. They also wanted all professors to use the platform and to have the possibility to chat with the professors there. Another thing that they told us about was that they would be interested in having the *UCA Campus Virtual*, which was a page containing a list of all their courses and grades, built into Lirweb to gather all information in one place instead of needing to sign in to two different pages. At UCA the students did not get any university e-mail and they were very interested in having that. They wanted the e-mail to be accessible through Lirweb as well.

We also discussed the accessibility of Lirweb and were talking about a desktop application for it and asked if that would be something that the students would use and be interested in. Two of the participants said that a better idea would be to have an application for the mobile phone instead, because then they would be able to check all information on Lirweb wherever they were since they always had their phones with them.

## **4.2.2 Focus Group at KTH**

### **Part 1 - Learning Management System, LMS**

All participants used both Bilda and KTH Social. Some of them had used one of the platforms more than the other one, depending on which courses they were taking. They were all unanimous in the fact that both platforms were useful tools and in many ways helpful for their studies. All participants were using Bilda for handing in assignments and getting access to

course information. One of the participants mentioned that he used Bilda much more often than KTH Social, because he never really needed to do something required by the professor on KTH Social. Some functions were however more accessible on KTH Social compared to Bilda, such as checking the schedule.

Bilda was used frequently in the beginning of the courses when the students needed to access the course material, and also during the course period if they had to deliver different assignment. At the end of the course they would also log in to Bilda more frequently to deliver the final assignments. KTH Social was used in a different way, mostly to check the schedule, have public online discussions and check information and links that the professor would post there. The participants liked the interface of KTH Social more than Bilda.

During the focus group one of the participants opened his laptop and went through Bilda to check which functions the platform actually had. Surprisingly, they found a lot of functions that most of them did not know about and had never used, such as calculator. When they were asked about those functions, they all agreed that most of the functions that they did not know about were unnecessary and useless to be there. *“Every computer has a calculator, who would sign in to Bilda for calculating numbers?”* was one of the comments that we got.

## Part 2 - Brainstorming with post-its about LMS

During the second part of the focus group the task was to write down functions and tools within four different categories that they would like to have in the ultimate LMS. The given categories were:

- Communication channels
- Learning material
- Automatic functions
- Collaborative tools

The functions that the participants wanted to have in each category are described in the table below.

Communication channels	Learning material	Automatic functions	Collaborative tools
Course forums	Videos with keywords	Automated feedback during course period	Feedback from former students
Privacy options	Tips for studies	Online quiz	Contact info of former students
Public evaluation results	Easy access to the material	Course credit counter	Virtual storage service
FAQ	Old exams	Online portfolio	Shared folders
Notification center	Video lectures	Schedule	
Chat function	Lecture slides		
Chat room with teachers	Links to related material		
	Free digital books		

Table 3. Functions that students at KTH wanted to have in their LMS.

Having video lectures was a very popular idea among the participants. They all mentioned that they watched a lot of videos such as lectures from other universities whenever they wanted to study and understand a concept in a better way. The possibility of having videos of the lectures at KTH on one of these platforms would make it easier for them to understand what the professors teach and always have access to them.

One of the participants who was in general less active on the Internet mentioned that having a notification center in the platform would be very useful for her to see the latest updates and also the new e-mails that she has received. She also preferred to have a very easy access to her school schedule, which was a common interest among all the participants.

Another useful service would be to have feedback from former students from different courses. When applying to a course, it would be very useful to be able to read what other students from the past years have experienced in that course. The participants thought that having this feedback in a public place on these platforms would be a good idea.

### **Part 3 - Brainstorming with post-its about other types of media**

The third part of the focus group was about how the students used other types of media and how/if they wanted to include some functions in Bilda and KTH Social. The media channels Skype, Facebook, Dropbox, Google Drive, Doodle, Google+, E-mail, Twitter, Instagram and LinkedIn were written on the whiteboard and the participants were supposed to write down which ones of them they used and for what purpose. They could also add any other media that wasn't mentioned on the whiteboard, if they used them.

Skype was used a lot for having meetings with other classmates for a project work or such. Some students did not have Facebook and therefore only used Skype for communicating. Another point that was mentioned by one of the participants was the screen sharing function that was very useful for some tasks such as coding. Only one participant had never used Skype for school purposes and used it only for being in touch with family and friends.

All participants used Facebook and were unanimous in the fact that it was a very important tool for group projects. The participants found it very easy to create groups on Facebook and therefore used it very often for communicating and also sharing files and creating events.

Dropbox was used for sharing files and also for backing up. One of the participants who was a student from the computer science department mentioned that for coding, Dropbox was very convenient because when working on a project, the members could just save the whole project there and every change would be synced automatically and everyone could download it directly from there. All participants used Dropbox for their projects and even private use.

YouTube was a very important channel for learning. Most of the participants used it to find lectures from different universities and other interesting videos related to their studies. "Khan academy" was also mentioned as an even better media for studying, as it had mostly shorter videos with very good tags, which made it easier for them to find the video that they were searching for. One of the participants used YouTube for many tutorials, because in her field of study they needed to learn how to use different programs and those tutorials were all available on YouTube.

All participants used Google drive, which was a very good tool for sharing documents and being able to work on them at the same time. What the participants mentioned was that Google drive was usually better for drafts, as it did not have so many options to change the layout and it was not possible to make illustrations and more advanced formats there. They were however unanimous in the fact that that was not the point of Google drive.

Doodle was used for planning meetings, especially when the number of people needed for the planning was high. LinkedIn was mentioned only by one of the participants, and in his case they were using it for finding people to interview for projects or such.

We asked the participants how Bilda and KTH Social could be improved in order to fulfill their needs, and they gave us some interesting inputs. They all wanted these two platforms to be accessible through a common place instead of having to sign in to each of them separately. The problem was that in order to access these platforms they needed to type a different address in a different window/tab, which was more complicated and as a result, some students would not check one of the platforms that was needed less than the other one. Another problem was that once they had logged in to the platform, they still needed to re-enter their username and password each time they clicked on a link for a different service. This was also valid for *KTH My Pages*, which was a page containing a list of all their courses and grades. To solve these problems and complications they wanted the platforms and their services to be integrated with each other.

Finally the participants were asked if they were interested in having a desktop application for Bilda or KTH Social. Their response was negative and they were not interested in at all because they thought that it was old-fashioned and they preferred to have access to the platforms from everywhere in the world. An application for the mobile phone was however a very good idea and all participants thought it could definitely be useful and successful because they always had their phones with them and it would be very convenient to be able to check things whenever they wanted to.

# 5. Analysis

*In this section we will analyze the results of our questionnaires and focus groups and try to answer our sub queries. This makes it easier to make a conclusion and find the answer to our main question. Our **sub queries** were the following:*

*Are there any cultural differences between Argentina and Sweden that could affect students' usage of LMS and social media to support their studies?*

*&*

*How can we improve Bilda, KTH Social and Lirweb so that they become more useful for the students and fulfill their needs?*

## 5.1 Result Analysis

*In this section we will evaluate the results that we have gathered throughout the study. First we will analyze and discuss the differences and similarities of the students' usage of LMS at the two universities. Then we will continue with an analysis of differences and similarities in their usage of SNS. Finally we will analyze if the cultural differences between Argentina and Sweden might have affected how students in these countries used LMS and SNS to support their studies.*

### 5.1.1 Differences and Similarities in Usage of LMS at UCA and KTH

As we can see from the results from the questionnaire and the focus groups, there are some differences between how the students at UCA and KTH used online learning platforms that the universities supply as well the usage of other media to support their studies.

#### **Differences**

Students at UCA logged in to Lirweb more often compared to how often students from KTH logged in to Bilda and KTH Social. At UCA 83% of the students logged in to Lirweb every week, whereas at KTH 50% of the students logged in to Bilda, and 42% logged into KTH Social every week. The students at the focus group at UCA said that they usually logged into Lirweb more frequently in the beginning of a new course, and continue logging in once a week or so to check information for the upcoming classes.

At UCA the students did not have any university e-mail, compared to KTH where every student had their own e-mail address generated by the university. The students at UCA who participated in the focus group were interested in getting an e-mail address with the motivation to have a "serious" e-mail address when looking for jobs etc.

## Similarities

Students from both universities wanted to have all the school services gathered at the same place. They wanted to have access to the university e-mail, platforms, list of course results and all study related functions all in one place. In the questionnaires we got several comments from students at KTH saying that they wanted KTH Social and Bilda to be one platform.

In addition, a lot of the functions that the students were interested in having in an optimal LMS platform were similar, such as video lectures, being able to chat with the professors and being able to see the documents online without needing to download them.

### 5.1.2 Differences and Similarities in Usage of Other Media

The results from the questionnaire show that students at KTH had a much bigger usage of Dropbox and Google Drive while working on group projects compared to students at UCA. What we do not know is if students at KTH had more group projects and therefore used those two social networking software more, or if students at UCA just used other ways of sharing documents. There was also a difference in which functions students used in other media apart from LMS. KTH students used functions such as creating groups, creating events and sharing files more than students at UCA. The only function that UCA students used more was the chat function.

There was a small difference when it came to students' opinions about integrating SNS functions such as chat, creating groups, creating events, sharing files etc. in the LMS that the universities provide. In one of the questions we asked if the students would still be using social media if those functions were available on the school LMS. A few students at KTH had answered that they would use social media for schoolwork if it meant that the accessibility and integration would become better. Accessibility was something that students at KTH mentioned both in the comments of the questionnaire and in the focus groups. *"It's all about access."* and *"I don't want to spend so much time trying to find my classmates. It should be direct access through the courses."* were two comments from KTH students.

62% of the students from KTH answered in the questionnaire that they "probably" would use SNS for schoolwork even if the functions were integrated in Bilda and KTH Social. 46% of the students at UCA answered "yes" to the same question compared to 20% at KTH. On the focus group at UCA the participants were asked if they would like to integrate social media in Lirweb and all of them said "no" with the argument that they did not want to mix university life with their private life.

## Similarities

About the same amount of students from UCA and KTH used social networks to interact with other students while working on group projects. Students from both universities used Skype and Facebook frequently for their group projects. There were also many similarities in the usage of SNS functions when the students were explaining which media they used for their schoolwork.

### 5.1.3 Cultural Differences Between Sweden and Argentina

*In this section we have compared the cultural differences between Argentina and Sweden to see if there were any factors that could affect students' usage of LMS and SNS to support their studies. The factors that we looked at were Power distance, Uncertainty avoidance, Individualism and Collectivism (see 2.2.3 Cultural Differences for description of the concepts).*

*Power distance* – KTH Social is one example of why Sweden's power distance index is so low. KTH Social was created by the university in order to improve the dialogue between students and teachers in different courses. The platform implements two-way teaching, which means that both students and teachers have to be very active on the platform. A big difference between KTH and UCA was that all students at KTH had access to Bilda and KTH Social, and it was necessary for them to log in to the platforms in order to take part in the course information, join group discussions and hand in assignments. At UCA on the other hand, some students had never used Lirweb at all. The engineering students in the focus group mentioned that some professors preferred to use other LMS or create an e-mail address for that specific class instead of using Lirweb. In this case the professors might have done what was easier for them, instead of thinking about what was best for the students and what fulfilled their needs in the best way.

*Uncertainty avoidance* – Considering the fact that Sweden's index value of uncertainty avoidance is much lower than Argentina (29 compared to 86), when we apply these numbers on e-learning we see that Swedish students and teachers might have an easier time adapting themselves with new technologies in education and are less depended on a strictly structured system governed by teachers, compared to students and teachers in Argentina (see figure 4).

Sweden has a higher level of *individualism* compared to Argentina. Focusing on individualism in relation to students' use of LMS, students in Sweden are expected to be more active in online discussions, frequently ask questions and comment on different tasks compared to students in Argentina. This means that the activity on an LMS can be expected to be much more in a university in Sweden compared to a university in Argentina.

#### **Adaption to Innovations**

Keeping the numbers of Internet users and the GII in mind and looking on how this might have affected the students' usage of both LMS and SNS to support their studies, we can conclude that students at KTH might have an easier time accepting new innovations and might as well be more open to new sorts of media for supporting their studies. For example, in the questionnaire students from KTH had mentioned that they used many platforms such as Asana, Doodle, Skype, SMS, e-mail and other online project management systems compared to students at UCA who had only mentioned e-mail and WhatsApp.

KTH students were also more open to new social media integrated solutions compared to students at UCA, which might be a result of the fact that the usage of Internet has been higher in Sweden over a long time period in combination with Sweden's ability to integrate innovation into their systems.



## 6. Discussion

*This chapter consists of three sections in which we will answer our main research question, evaluate our research methods and criticize the sources we used throughout this thesis.*

### 6.1 Answer to Our Main Research Question

Our **main research question** was:

*What is missing in the learning management systems that makes the students turn to other media as a supplement to their studies?*

As a conclusion, one of the main reasons that students turn to other media is the usability and accessibility of those platforms. Nowadays people are used to SNS such as Facebook, Twitter, Dropbox etc. These sites are constantly maintained and developed for easy communication and good interaction. However, not all students are represented on SNS and therefore it is vital for them to have a platform where they can communicate with other students while working on group projects etc. As long as there is one mean of communication that is easier to use than Bilda, KTH Social or Lirweb, the user will always choose the most simple and least time consuming option.

Students at UCA and KTH were unanimous that the current systems lack in the possibility to easily access different sites and services such as university e-mail, class schedules and other university related information from one website without having to retype the username and password for each site.

Students at UCA made it very clear that they did not want to mix their private life with their school life. They would like the university's LMS to have a clear designed interface with good usability, but without the functions of making a profile, uploading pictures etc.

A problem that was brought up by students at UCA very early in the focus group was the collaboration with the professors. They mentioned that some of their professors at that moment were using their own way of communication with the students. They would prefer to communicate and share files through e-mail or other LMS instead of Lirweb. The reason behind that was that the professors did not know how to use Lirweb, or had been using the other way of communication for a long time and did not want to change from something that already worked. In Sweden however, the professors are more open to suggestions from the students about trying out new platforms and services.

We have based this study on the fact that students actually have to use LMS for their studies because of several reasons. At KTH students were required to use Bilda or KTH Social for their courses in order to hand in assignments, have access to course material and other tasks. Another reason was that not all students use SNS and other media such as Facebook and Skype, and those students should still be able to do their schoolwork and easily interact with other students through an LMS provided by their school.

## 6.2 Evaluation of Methods

*In this section we will evaluate the methods used in the study. We will start by evaluating the questionnaire and continue with the focus groups. The final part of this chapter will be source criticism, which will be more general about the literature studies performed in the start of our research.*

### 6.2.1 Questionnaires

The questionnaires were handed out at a good stage of the study. We had clarified our main research question and written the questions according to that. Distributing the questionnaires by hand at UCA gave us a higher amount of responses compared to KTH where the questionnaire was e-mailed to the students followed by four reminders for them to fill them in. We got 92 out of 100 responses from the students at UCA and 50 out of 110 responses from the students at KTH.

We decided to make only one questionnaire and have the English and Spanish questions next to each other, instead of making two different questionnaires one in English and one in Spanish. In the beginning of the questionnaire the students had to answer if they studied at KTH or UCA and we thought that with the help of that we could easily separate the results that we get from each university. However, when it came to gathering the results we realized that if we wanted to divide the results according to the university, it was not possible to make graphs out of them using Google forms. We could only get the results in a table, and therefore, we had to manually calculate the percentage of the results for each university in order to be able to make graphs. That took quite a lot of unnecessary time and energy from us.

After analyzing the results of the questionnaires we realized that we could have been clearer about some questions and their answers. For example, one of our questions was “*Which one(s) of the following platforms have you used?*” and after that a clarification saying “*If you choose "None / Ninguna" in this question, you can jump to question number 14.*”. What we forgot to mention was that for the rest of the students who answered the questionnaire, if they did not choose “*None / Ninguna*” they did not need to answer questions number 14-18. Questions number 14-18 were supposed to be answered only by the students who had not used any of the platforms, which in our case were only four exchange students from UCA. As a result, we got up to 28 answers for those questions, which had to be eliminated from the final results of the questionnaires. Despite that, the rest of the questions were appropriate and formulated clearly, which helped us gather many valuable data.

## 6.2.2 Focus Groups

A significant part of our results were gathered from the focus groups. We had one focus group at UCA and one at KTH. Since we did not know how well students at UCA understood English we decided to hold the focus group in Buenos Aires in Spanish to avoid misunderstandings and misinterpretations. It was very important that the participants would feel comfortable with the situation and therefore it was necessary to use the language that they all spoke fluently. The focus group was held in one of the common areas at the university. At that specific hour, there were no other students in that area, which is why we chose to arrange it there because the place was optimal for a focus group of our size.

The focus group in Stockholm was held one week after the focus group in Buenos Aires. That helped us gain some experience of things that needed to be taken into account. We had booked a library room for the event and the language we used for this focus group was English because of two exchange students that were participating in it.

The group dynamic in both focus groups was in a way that everyone got the chance to talk equally. In the first part there was a common discussion about LMSs where everyone got to talk freely. For the second and third task that they had some time to write down their ideas on post-its, and after that each of them got to explain and motivate the things they had written down. This helped them all in being active during the whole two hours and avoided them from feeling bored or left out.

After having held the focus groups we realized that we could have used a different approach and let the students think from their own point of view instead of giving them hints and ideas. We could have asked them to imagine that they were going to work on a project, and therefore needed to contact the members, decide a way of communication, share files and do other typical steps for working on a project. The task then would have been for them to explain their approach and what media/platforms they would have used to accomplish different tasks. This probably would have given us better information and a clearer idea of their usual routines without any influence from our side.

### Selection of participants

Our target group was students of UCA and KTH. At KTH we chose students from different study years, attending different programs. In addition to that two of them were exchange students who had been studying at KTH for almost a year.

At UCA the focus was only on students from the engineering faculty since they were the ones who used Lirweb the most. We also wanted to have a similar group to KTH, where all students were studying engineering, in order to be able to compare the usage of the same conditions. The selection of the students was very good because we got a different range of answers and opinions from each one of them and gathered very useful data. One of the participants at the focus group at UCA was actually working with Lirweb and therefore brought some interesting point of views to the discussion and answered questions about functions that the other participants did not know anything about.

## 6.3 Source criticism

For the theory and methodology sections we mainly searched for literature online using Google Scholar and KTH Primo. These search monitors filter out some of the most unsecure sources, but we still were very thorough on double checking the sources of the literature we found to make sure that they were trustworthy and appropriate. We also checked if the articles had been cited by many others and found some of the literature through the lists of references in the articles that we found reliable.

Some of our diagrams and statistics were taken from [www.globalis.no](http://www.globalis.no). This page was developed by the *United Nations Association of Norway* and Norad (*Norwegian Agency for Development Cooperation*). The page was first of all meant to be a valuable tool in the upper secondary school and high school, as an interactive world atlas and digital encyclopedia. The purpose of the page was to show differences and similarities between various countries. However, the sources of where the data in this page was gathered from were not given. This made it difficult for us to secure the data, but we decided to use it as the trend of the data we took was very clear and could hardly be too inaccurate.

# 7. Conclusion

*This chapter is based on our main research question: What is missing in the learning management systems that makes the students turn to other media as a supplement to their studies? We will present our ideas for the future of LMS at KTH and UCA as well as our suggestions for future researches.*

## 7.1 The future of LMS at KTH & UCA

The learning management systems at both KTH and UCA can be developed in order to fulfill the needs of the students. Students at both universities wanted all the services and functions of different platforms located in one place.

As a first step, UCA could try to meet the students' needs by encouraging all the professors to use Lirweb instead of several different communication channels. They can also make user tests on the platform in order to find out what could be improved there for getting more satisfaction from the users. UCA can also expand the target group of Lirweb from only students of the engineering faculty, to all students that study at UCA.

One problem that was discovered during the focus groups was that Bilda has lots of functions that the students do not know about. When the functions were discovered, the participants agreed that most of those functions were unnecessary and not useful for having on an LMS. KTH can make user tests on both platforms and find out if the interface needs to be changed in order to become more user friendly and modern. They can also make studies to find out what the students actually want from the platforms. With the help of that, they can remove the unnecessary functions and add more useful functions instead. A lot of students from KTH found it confusing that they had to use Bilda for some courses and KTH Social for some others. An idea would be that the professors all agree on using both platforms for different purposes. Integrating the two platforms with each other would also be very helpful, so that students would not need to log in to them separately.

## 7.2 Future Research

This study has given useful answers to many questions, but throughout the study there were other questions that opened up and of course, there are always things that can be improved. The target group for this study was only students from two universities. In order to get even better results it is recommended to have a larger target group preferably in different countries and different universities.

Another important aspect about LMS and social media is that all that those platforms are an interaction between students and teachers. In this project we have only focused on the students' perspective. However, teachers' perspective is just as important and should definitely be researched about. The needs that the teachers have are most probably different than the ones from the students, and for developing a platform both aspects should be taken into account.

## 8. References

- Alexander, B., 2004. Going Nomadic: Learning In Higher Education. *EDUCAUSE*, (October), pp.29–35.
- Boyd, D.M. & Ellison, N.B., 2007. Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*, 13(1), pp.210–230. Available at: <http://doi.wiley.com/10.1111/j.1083-6101.2007.00393.x> [Accessed February 27, 2013].
- Cohen, L., Manion, L. & Morrison, K., 2000. *Research methods in education*, Routledge.
- Cormode, G. & Krishnamurthy, B., 2008. Key differences between Web 1.0 and Web 2.0. *First Monday*, 13(6), pp.1–11. Available at: <http://firstmonday.org/ojs/index.php/fm/article/view/2125/1972> [Accessed May 17, 2013].
- Dutta, S., 2012. *The Global Innovation Index 2012*,
- Gustavsson, M.B. & Kalcidis, J., 2011. *KTH Social–studenters förhoppningar om en ny social läroplattform*.
- Hofstede, G., 2001. *Culture’s consequences: Comparing values, behaviors, institutions and organizations across nations*, Sage Publications, Incorporated.
- Hrastinski, S., Aghaee, N. & Aghaee, M., How are campus students using social media to support their studies? An explorative interview study. *The Official Journal of the IFIP Technical Committee on Education*, 17(4), pp.451–464.
- Keller, C. et al., 2009. The impact of national culture on e□learning implementation: a comparative study of an Argentinean and a Swedish university. *Educational Media International*, 46(1), pp.67–80.
- Lab, K.L., 2013. PING PONG Hjälp och Manualer. , pp.1–163.
- Maloney, E.J., 2007. What Web 2.0 Can Teach Us About Learning. *The Chronicle of Higher Education*, 53(18), p.B26. Available at: <http://chronicle.com/weekly/v53/i18/18b02601.htm> .
- McGill, T.J. & Klobas, J.E., 2009. A task–technology fit view of learning management system impact. *Computers & Education*, 52(2), pp.496–508. Available at: <http://www.sciencedirect.com/science/article/pii/S0360131508001541>.
- Moore, J.L., Dickson-Deane, C. & Galyen, K., 2011. e-Learning, online learning, and distance learning environments: Are they the same? *The Internet and Higher Education*, 14(2), pp.129–135. Available at: <http://linkinghub.elsevier.com/retrieve/pii/S1096751610000886> [Accessed March 5, 2013].

- Roblyer, M.D. et al., 2010a. Findings on Facebook in higher education: A comparison of college faculty and student uses and perceptions of social networking sites. *The Internet and Higher Education*, 13(3), pp.134–140. Available at:  
<http://www.sciencedirect.com/science/article/pii/S1096751610000278>.
- Roblyer, M.D. et al., 2010b. Findings on Facebook in higher education: A comparison of college faculty and student uses and perceptions of social networking sites. *The Internet and Higher Education*, 13(3), pp.134–140. Available at:  
<http://www.sciencedirect.com/science/article/pii/S1096751610000278>.
- Rubin, J. & Chisnell, D., 2008. *Handbook of Usability Testing: Howto Plan, Design, and Conduct Effective Tests*, Wiley.
- UCA, 2013. Academic Exchange Factsheet 2013-2014. Available at:  
[http://www.uca.edu.ar/uca/common/grupo39/files/FactSheetColor\\_English-final.pdf](http://www.uca.edu.ar/uca/common/grupo39/files/FactSheetColor_English-final.pdf).
- Wood, E.M., 1972. *Mind and politics: An approach to the meaning of liberal and socialist individualism*, Univ of California Press.
- Daniel Goldberg, Linus Larsson 2012, *Svenska Hackare*, p. 295. Stockholm.
- KTH 2012, *About KTH*, accessed 28 April 2013.  
<http://www.kth.se/en/om/fakta>
- Cultural differences between Argentina and Sweden, accessed 12 March 2013.  
<http://geert-hofstede.com>
- Internet users, Argentina & Sweden, 1990-2010, accessed 18 April 2013.  
<http://www.globalis.no>

# Appendix 1 – Questionnaire

## Students' usage of universities' online internal platform and social media in their studies

In this study we want to know how students of higher education use their school's online internal platform and social media in order to support their studies.

En este estudio queremos saber cómo los estudiantes de educación superior usan su plataforma universitaria interna en línea y los redes sociales con el fin de apoyar sus estudios.

\* Required

### 1. Gender // Género \*

- Female / Femenino  
 Male / Masculino

### 2. Which university do you go to? // ¿En cuál universidad estudiás? \*

- KTH (Stockholm)  
 UCA (Buenos Aires)

### 3. Are you an exchange student? // ¿Eres un estudiante de intercambio? \*

- Yes / Sí  
 No / No

### 4. Which one(s) of the following online platforms have you used? // ¿Cuál o cuáles de las siguientes plataformas en línea has usado? \*

If you choose "None / Ninguna" in this question, you can jump to question number 14. // Si eliges "None / Ninguna" en esta pregunta, por favor continua con pregunta número 14.

- Bilda  
 KTH Social  
 Lirweb  
 None / Ninguna



5. How often do you log into the following platforms? // ¿Con qué frecuencia entrás a las siguientes plataformas?

	2-5 times per day / 2-5 veces por día	3-7 times per week / 3-7 veces por semana	2-5 times per month / 2-5 veces por mes	Seldom / Rara vez	Never / Nunca
Bilda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
KTH Social	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lirweb	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. For what purpose do you usually use the online platform "Bilda"? // ¿Con qué proposito usualmente usas la plataforma en línea "Bilda"?

You can choose more than 1 option // Podés seleccionar más de una opción.

- Interact with other students / Interactuar con otros estudiantes
- Interact with professors / Interactuar con profesores
- Share files / Compartir archivos
- Hand in assignments and check deadlines / Enviar tareas y verificar fechas finales
- Check course information/schedule/etc. / Chequear información de las clases/horarios/etc.
- Join in the project groups/group discussions / Unirse a grupos de proyecto/grupos de discusión
- I don't use this platform / No uso esta plataforma
- Other:

7. For what purpose do you usually use the online platform "KTH Social"? // ¿Con qué proposito usualmente usas la plataforma en línea "KTH Social"?

You can choose more than 1 option // Podés seleccionar más de una opción

- Interact with other students / Interactuar con otros estudiantes
- Interact with professors / Interactuar con profesores
- Share files / Compartir archivos
- Hand in assignments and check deadlines / Enviar tareas y verificar fechas finales
- Check course information/schedule/etc. / Chequear información de las clases/horarios/etc.
- Join in the project groups/group discussions / Unirse a grupos de proyecto/grupos de discusión
- I don't use this platform / No uso esta plataforma
- Other:

**8. For what purpose do you usually use the online platform "Lirweb"? // ¿Con qué proposito usualmente usas la plataforma en línea "Lirweb"?**

You can choose more than 1 option // Podés seleccionar más de una opción

- Interact with other students / Interactuar con otros estudiantes
- Interact with professors / Interactuar con profesores
- Share files / Compartir archivos
- Hand in assignments and check deadlines / Enviar tareas y verificar fechas finales
- Check course information/schedule/etc. / Chequear información de las clases/horarios/etc.
- Join in the project groups/group discussions / Unirse a grupos de proyecto/grupos de discusión
- I don't use this platform / No uso esta plataforma
- Other:

**9. How easy do you find it to share files with the others using the following platforms? // ¿Cuan fácil tu encuentras compartir archivos con otros usando las siguientes plataformas?**

	Very easy / Muy fácil	Easy / Fácil	A bit difficult / Un poco difícil	Very difficult / Muy difícil	Have never used the system / Nunca uso este sistema
Bilda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
KTH Social	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lirweb	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**10. How easy do you find it to communicate and interact with other students using the following platforms? // ¿Cuan fácil tu encuentras comunicarte e interactuar con estudiantes usando las siguientes plataformas?**

	Very easy / Muy fácil	Easy / Fácil	A bit difficult / Un poco difícil	Very difficult / Muy difícil	Have never used the system / Nunca uso este sistema
Bilda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
KTH Social	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lirweb	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**11. How easy do you find it to communicate and interact with the professors using the following platforms? // ¿Cuan fácil tu encuentras comunicarte e interactuar con profesores usando las siguientes plataformas?**

	Very easy / Muy fácil	Easy / Fácil	A bit difficult / Un poco difícil	Very difficult / Muy difícil	Have never used the system / Nunca uso este sistema
Bilda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
KTH Social	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lirweb	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**12. How easy do you find it to hand in assignments using the following platforms? // ¿Qué tan fácil encuentras enviar tareas usando las siguientes plataformas?**

	Very easy / Muy fácil	Easy / Fácil	A bit difficult / Un poco difícil	Very difficult / Muy difícil	Have never used the system / Nunca uso este sistema
Bilda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
KTH Social	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lirweb	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**13. Do you have any other comments or thoughts about using online internal school platforms for the studies? // ¿Tenés algún otro comentario o pensamiento acerca del uso de las plataformas internas en línea de tu universidad para tus estudios?**

After answering all the questions about the platforms, you can jump to question number 19. // Después de contestar todas las preguntas sobre las plataformas, podés continuar con la pregunta número 19.

**14. If you have not used any of the 3 platforms mentioned above, how do your professors share information and files with the students? // Si tu no has usado ninguna de las tres plataformas mencionadas anteriormente, ¿cómo tus profesores comparten información y archivos con los estudiantes?**

You can choose more than 1 option // Podés seleccionar más de una opción

- Through email / Por correo electrónico
- Through social networks (Facebook, Twitter, etc.) / Por redes sociales (Facebook, Twitter, etc.)
- Through Google Drive / Por Google Drive
- Through Dropbox / Por Dropbox
- Other:

**15. On a scale from 1 to 5, how useful and effective do you find it to interact with other students using the method(s) that you mentioned above? // En una escala del 1 al 5, ¿qué tan útil y eficiente consideras que es interactuar con otros estudiantes usando los métodos mencionados anteriormente?**

1 2 3 4 5

Not at all effective / Para nada eficiente      Very effective / Muy eficiente

**16. On a scale from 1 to 5, how useful and effective do you find it to interact with the professors using the method(s) that you mentioned above? // En una escala del 1 al 5, ¿qué tan útil y eficiente consideras que es interactuar con profesores usando los métodos mencionados anteriormente?**

1 2 3 4 5

Not at all effective / Para nada eficiente      Very effective / Muy eficiente

**17. On a scale from 1 to 5, how useful and effective do you find it to share files using the method(s) that you mentioned above? // En una escala del 1 al 5, ¿qué tan útil y eficiente consideras que es compartir archivos usando los métodos mencionados anteriormente?**

1 2 3 4 5

Not at all effective / Para nada eficiente      Very effective / Muy eficiente

18. On a scale from 1 to 5, how useful and effective do you find it to hand in assignments using the method(s) that you mentioned above? // En una escala del 1 al 5, ¿qué tan útil y eficiente consideras que es enviar tareas usando los métodos mencionados anteriormente?

1 2 3 4 5

Not at all effective / Para nada eficiente      Very effective / Muy eficiente

19. Do you use any other type of media to interact with other students while working on group projects? Which ones(s)? // ¿Utilizas otro tipo de medios para interactuar con otros estudiantes mientras trabajas en proyectos grupales? Cúal/cúales? \*

You can choose more than 1 option // Podés seleccionar más de una opción

- Social networks (Facebook, Twitter, etc.) / Redes sociales (Facebook, Twitter, etc.)
- Google Drive
- Dropbox
- I don't use any other media / No uso ningún otro medio
- Other:

20. Which functions do you mostly use in these media? // ¿Qué funciones usas con mayor frecuencia en estos medios? \*

You can choose more than 1 option // Podés seleccionar más de una opción

- Chat / Chatear
- Creating groups / Crear grupos
- Creating events / Crear eventos
- Sharing files / Compartir archivos
- Other:

21. If those functions were available on school's internal platform, would you still be using social media for schoolwork? // Si estas funciones estuvieran disponibles en tu plataforma universitaria, ¿tu continuarías usando las redes sociales para trabajo de la universidad? \*

- Yes / Sí
- No / No
- Probably / Probablemente

22. Do you have any other comments or thoughts about using other types of media for the studies? // ¿Tenés algún otro comentario o pensamiento sobre el uso de otros tipos de medios para estudiar?

Are you interested in attending our focus group, which will be about the same topic? We will offer some "fika"! If yes, please type in your email address in the box :) // Estás interesado(a) en asistir a nuestro grupo de enfoque en el que se tratará el mismo tema? Estaremos ofreciendo "Fika" ("Fika"= café o té + medialunas o otros acompañamientos :))

# Appendix 2 – Focus group questions

## Part 1 - Learning Management System, LMS

- What is LMS? Which LMSs do you use?
- For what purposes do you use them?
- When do you use them?
- How often do you use them?
- Describe the advantages and disadvantages

## Part 2 - Brainstorming with post-its about LMS

Categories:

- Automatic functions
- Collaboration tools
- Learning material
- Communication channels

Write down which functions you would like to have in an optimal LMS under each category. Motivate why you would like to have those functions.

## Part 3 - Brainstorming with post-its about other types of media

List of the media written on the whiteboard:

- Skype
- Facebook
- Twitter
- Instagram
- Dropbox
- Google drive
- Doodle
- Google+
- E-mail
- LinkedIn

Write down which of these media you use. You can also add other media that are not mentioned on the whiteboard. Motivate for what purposes you use each media, which functions you use and if it's interesting to have some of those functions on the LMS.

