Acknowledgements:

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Elena Paraschiv, Thuy Dung Do, Wei Huang
Jönköping International Business School
Sweden December 2015
Sammanfatthing:

Den nya eran av teknik i dagens samhälle gör att allt måste uppdateras. Detta utgör en ny utmaning för utbildningen som bör anpassa sig till denna tekniska utveckling. Dessutom, som en följd av det teoretiska gapet som separeras från praxis i handelshögskolor är det tydligt att universiteten knappast kan hjälpa studenter att skaffa sig underförstådd kunskap. På grund av det här problemet kan handelshögskolor begränsa potentialen av studentens framgång. Däremot visar vår forskning att användningen av tekniken i det flippade klassrummet kan bidra till att förbättra situationen. Denna studie undersöker effektiviteten i teknikanvändning i klassrummet såväl som utanför klassrummet genom att intervjua fem lärare inom olika områden av undervisning på Jönköping Internationella Handels Högskola. Resultaten visar att det är många aspekter som bör beaktas, såsom policy, utvecklingsarbete av lärare, utveckling av VLE i tillägg till andra tekniska förbättringar, innan man applicerar tekniken i det flippade klassrummet.

Abstract:

Nowadays, in the new era of technology, everything needs to be updated, which represents a new challenge to education to adapt to the developments in technology. Moreover, due to the gap of theory separating practices in business schools, it is becoming obvious that the Universities can hardly help students to acquire experience. Due to this problem, business schools can limit the potential of students’ success. This study examines the efficiency of technology use in class as well as outside of the classroom. This was done by interviewing five teachers within different areas of teaching in Jönköping International Business School. The results show that there are many aspects that need to be considered such as policy, teacher development, the development of the virtual learning environment and other technological improvements, before applying technology in flipped classroom.
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1. Introduction

As stated by Barber et al. (2013) the value of the degree is also diminishing. In UK and US the high graduate unemployment was also met by employers with unfulfilled positions and in one report 45% of employers have difficulties in finding the right skills to hire a person, and 70% of them put the blame on lack of adequate training (Barton, 2012).

In Sweden, the trend is alike. Even if the unemployment rate in 2015 is 20% (the number of job vacancies is higher than the number of unemployed persons (Figure 1), so the conclusions are similar with those of Barber et al. that the value of higher education is becoming questionable.

<table>
<thead>
<tr>
<th>Sweden Labour</th>
<th>Last</th>
<th>Previous</th>
<th>Highest</th>
<th>Lowest</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployment Rate</td>
<td>6.70</td>
<td>6.40</td>
<td>10.50</td>
<td>1.30</td>
<td>percent</td>
</tr>
<tr>
<td>Employed Persons</td>
<td>4834.0</td>
<td>4877.70</td>
<td>4877.70</td>
<td>4292.80</td>
<td>Thousand</td>
</tr>
<tr>
<td>Unemployed Persons</td>
<td>348.00</td>
<td>337.00</td>
<td>503.00</td>
<td>243.00</td>
<td>Thousand</td>
</tr>
<tr>
<td>Job Vacancies</td>
<td>597.00</td>
<td>555.00</td>
<td>1000.00</td>
<td>51.00</td>
<td>Hundred</td>
</tr>
<tr>
<td>Long Term Unemployment Rate</td>
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<td>1.60</td>
<td>3.30</td>
<td>0.30</td>
<td>percent</td>
</tr>
<tr>
<td>Youth Unemployment Rate</td>
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<td>19.50</td>
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<td>2.90</td>
<td>percent</td>
</tr>
<tr>
<td>Wages</td>
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<td>163.90</td>
<td>133.60</td>
<td>SEK/Hour</td>
</tr>
<tr>
<td>Wages in Manufacturing</td>
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<td>170.40</td>
<td>174.20</td>
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</tr>
<tr>
<td>Labour Costs</td>
<td>120.30</td>
<td>120.50</td>
<td>120.80</td>
<td>100.00</td>
<td>Index Points</td>
</tr>
<tr>
<td>Population</td>
<td>9.75</td>
<td>9.56</td>
<td>9.75</td>
<td>7.47</td>
<td>Million</td>
</tr>
<tr>
<td>Retirement Age Women</td>
<td>65.00</td>
<td>65.00</td>
<td>65.00</td>
<td>65.00</td>
<td>[+]</td>
</tr>
<tr>
<td>Retirement Age Men</td>
<td>65.00</td>
<td>65.00</td>
<td>65.00</td>
<td>65.00</td>
<td>[+]</td>
</tr>
</tbody>
</table>

Figure 1 Retrieved from -http://ieconomics.com/sweden-youth-unemployment-rate-forecast


Therefore, according to Meyer et al. (2013) and Reynolds et al. (2014), the school success is a topic that attracted a lot of attentions from researchers in recent years. And it is assessed by student’s academic achievements under the international benchmarking and global regime. Thereby, the school that manages to achieve success will attract a lot more students (Tubin, 2015). In order to do so, Bruggencate et al. (2012) and Bryk, (2010) have stated that the effective measurements, which are: coherent guidance, student-centered learning environment, equipped faculties, positive campus-community ties and leadership that drives change are presented in schools’ high achievements (Tubin, 2015).
And for students to earn high achievements, a deep understanding about what they have learned connected with practice, should be assumed (Albert & Beatty, 2015). However, Armstrong has mentioned that business schools are being criticized for focusing on formal education or functional aspects of business and management and for separating learning from practice. The consequence of this is that business education equips potential managers to discuss about practice rather than producing managers who are really competent practitioners. Therefore, schools should combine both theory and practice together that can help students to accumulate a deeper understanding, and thereby to gain the competitive advantages that derive from student’s achievements.

Furthermore, according to Barber et al. (2013) the two main factors that affect the educational arena are technology and globalization. Technology made it possible for free, flexible and massive open online content (MOOC) to be available at the tip of the fingerprints for anyone with an Internet connection, while globalization allowed students to travel internationally and shop for the optimal education. Both of these decreased the monopoly that universities and libraries had in the past.

Hence, in this thesis, we will explain more in depth about how technology can be used and adapted in flipped classroom as a suggestion and illustrate our research through the case of Jonkoping International Business School in the paper.

2. Problem

The challenge of technology development is impacting education, thus, it is time for education to keep up with the advancements by combining technology and pedagogy for better educational practices that focus on practical and theoretical aspects, proposing flipped classrooms as a solution. Nonetheless, in order to implement flipped classrooms, suitable means of technology are also needed. We look at the main present technology that teachers use in class, which is the Virtual Learning Environment (VLE). Thereby, to assess what are the drawbacks that prevent teachers from implementing it and what improvements can be made from a technology acceptance perspective in blended learning environment.

3. Purpose

Our purpose with this thesis is to study the educational and technological challenges at JIBS, and thereby, give a recommendation on using the VLE and flipped classroom in a blended learning environment as a feasible strategy in higher education. To tackle this problem we propose the following research questions:

**RQ 1.** How is a VLE suited in an e-learning perspective, teaching with technology in class?

**RQ 2.** How is change created in the university to adapt to flipped classrooms in higher education?
4. Perspective

The problem of our thesis is studied both from educators and educational researchers' perspective, to ensure the authenticity and reliability of our contents. By taking both educational professions points of view, it is likely to demonstrate problems more accurately and express the tendency of revolution that is taking place within the educational system. Even if JIBS is a private organization of higher education, by studying our university with the scope of educators’ opinion and peer-reviewed knowledge, certain recommendations will be given out to our readers eventually. Our thesis is of particular interest to the educators and students who share the same interest towards the revival of education and technology development.

5. Delimitation

After we analyzed the e-learning model, we would not focus on categories B, C and D because the business school we chose is campus-based, therefore, these three categories that only discuss the individual learning in distance, are not suitable. Within category B, the course is completely self-paced, which means the course can be started and finished by the participants at their own convenience. They can study and research with various modules by themselves and then take the accreditation examination. Within category C, a fully Web-based course is delivered entirely over the Internet and extensively facilitated by virtual experts and mentors. Within category D, participants are expected to develop their own pedagogical approaches with knowledge sharing via workshops and seminars, and research themselves through learning materials in CD-ROMs and Web pages format, at their own pace. There is no class, lecture or face-to-face instruction within these three categories. In addition, we would not focus on non-formal and informal learning because the terms are not related to higher education and University campus.

6. Definitions

We will be introducing all the terms and models definitions in bold letters in this part to let all the audience understand our argument. Thus, some further discussion about the concepts and models will be presented in the theoretical frame of reference.

What is learning?
According to Elmgren and Henriksson (2014) p. 22, there are six definitions to the learning theory.

- Learning is viewed as the process of increasing one’s knowledge and collecting facts. Knowledge is construed as something to be consumed.
- Learning is a process of memorization and reproduction. Here, knowledge is also to be consumed but more attention is given to the method of consumption and to the
demonstration of successful consumption. Knowledge is to be hammered in, and lasting knowledge is achieved through repetition.
- The third view deals with acquiring and applying knowledge. Learning is not just about acquiring and storing knowledge but also about being able to apply it in new situations.
- The fourth view focuses on understanding, i.e. gaining new perspectives or insights in relation to something. Knowledge becomes an integrated part of the individual and involves reflection and developing a personal stance.
- The fifth views' main point is about encompassing new ways of seeing things by expanding the perspective and having a more dynamic view of the world.
- The final view expresses the means towards developing as a person. To learn is not just a matter of broadening one’s perspectives; it is also about changing oneself and growing as a person.”
The first three ways deal with learning as a process of acquisition and reproduction, whereas the latter three views emphasizes the search for meaning.

According to EU’s definition - EC (2001), there are three types of learning, which are described as follow.
- **Formal learning**: learning typically provided by an education or training institution, structured (in terms of objectives, learning time or learning support) and leading to certification. Formal learning is intentional from the learner's perspective.
- **Non-formal learning**: learning that is not provided by an education or training institution and typically does not lead to certification. It is, however, structured (in terms of learning objectives, learning time or learning support). Non-formal learning is intentional from the learner’s perspective.
- **Informal learning**: learning resulting from daily life activities related to work, family or leisure. It is not structured (in terms of learning objectives, learning time or learning support) and typically does not lead to certification. Informal learning may be intentional but in most cases it is non-intentional (or incidental/ random).”
However, we would like to focus on formal learning definition that will help us with our research.

According to Prashar (2015), **flipped classroom** is described as the technology usage to present new concepts outside the classroom and reinforce learning with students’ discussion in class. Further discussion on how flipped classroom can be used and its’ models will be shown in the theoretical frame of reference.

There are three most common definitions of **blended learning**
- Combining instructional modalities (or delivery media);
- Combining instructional methods;
- Combining online and face-to-face instruction.” (Bonk et al., 2006, p.26).
The first two descriptions explained the argument between the effect of media and method on learning.Both of them were influenced by the broad definition of blended learning, in order to include virtually all-learning systems. This means that nowadays it can be quite difficult to find any learning system that does not involve multiple
instructional methods and multiple deliveries. Therefore, the third definition is the better position compared to the other two.

Bonk et al. (2006) described the E-learning model firstly with the two rows performed modules of e-courses that are either part of a blended activity or are completed Web-based. The two columns represent the format of instruction, categorized by facilitated or independent study. Facilitated means that the course is designed with the beginning and ending date, managed by virtual instructors, while local experts guide the learning process. Within independent study, students can do the course anytime they want on their own. Overall, the World Bank Institute’s courses have defined the four categories and we will discuss how this model can be used in theoretical frame of reference.

With the development and advancement of digital technologies and the changes in second generation of World Wide Web (known as Web 2.0), personal learning environment (PLE) emerges alongside the rise, providing learners more diversity of choice regarding web application, as well as space to manage their own learning. There has not been a universal definition regarding to the term. However, Žubrinić and Kalpić (2008) depicted PLE as a system that helps learners to take control of and manage their own learning. This includes providing support for learners to set up their own learning goals, manage their learning in both content and process way, and communicate with others during the process of learning. Moreover, Harmelen (2006) suggests that PLEs may be characterized in a multidimensional space.

The emergency of personal learning environment does not only imply learning and teaching behavior, but also challenging the previous dominant educational system, which is known as virtual learning environment (Wilson, Liber, Johnson, Beauvoir, Sharples & Milligan, 2007).

The Joint Information System Committee (JISC, 2002) defines VLE as a software environment that manages the interaction between educators and students and the components that facilitate the exchange, including online learning. The term is interchangeable with the terms Learning Management System (LMS) and Course management System (CMS).

Brown (2010) traces the early adoption of VLE back to the 1990 when Higher Education Institutions were confronting with economical challenges, raising differences in students and competition. To all these demands, VLE posed as an affordable solution to flexibly distribute course materials and support students by using a standard set of tools that were centrally managed by the University. Through time VLEs have been upgraded in functionality, transforming from centralized information process systems to accommodate personalized learning (Severance, Hardin, Whyte, 2008). Nonetheless the VLE system still represents limitations that can otherwise be managed by Web 2.0 (Brown, 2010).

There are a wide number of LMSs available. The platforms that have a major impact worldwide are Moodle, WebCT, Blackboard, and Sakai. In Sweden, Ping Pong is a LMS,
which offers tools common to the previously mentioned VLE, in corporations, governmental organization universities and schools with slight modifications depending on the requirements of the users. In this thesis we focus on the LMS Ping Pong at Jönköping University.

According to Cormode and Krisnamurthy (2008), **Web 2.0** is defined as a read and write web where “users are as important as the content they upload and share with others (Hicks & Graber, 2010).” There is a vast range of Web 2.0 technologies at educators’ disposal, but the ever-expanding number of Web 2.0 technologies make it impossible to define the field (Bower, Hedberg & Kuswara, 2010).

The term **MOOC** stands for massive open online course. According to Pomerol et al. (2015), Christian Queinnec is a pioneer in the teaching of computer science online. She defined MOOC as: ‘*a MOOC is distance learning, accompanied by assessment which is also essentially, remote, associated with social networks which favor exchanges between student ‘*(p.9). And it first arose in the United States and become a phenomenon afterwards. The birth of first MOOC can be pinpointed to 2008, the launch of an interactive online training course, by George Siemens and Stephen Downes, on “Connectivism and Connective Knowledge.” (Pomerol, Epelboin & Thoury, 2015). The courses online are open to all and do not have a geographical and physical limitation because they are completely digitalized and can be accessed by any visitor through Internet with no barriers.

### 7. Frame of Reference

*Within this chapter, we will describe the frame of theoretical structure in the literature reviewed that we based to compare with our empirical findings. Following is the discussion of how to use e-learning model in combination with TAM to illustrate our suggestion.*

#### 7.1 Pedagogical research

*The discussion of education overview around the world is presented, thereby, to define the scope of the market we chose as well as the indirect factors explanation in this section.*

Hiltz et al. (2005) stated that we are in the process of moving from the offer of traditional physical courses by locals, regional, and national universities to the offer of virtual courses using technologies to support constructivist, collaborative, students-centered pedagogy by many global Universities. Moreover, according to Rienties et al. (2009), Brouwer et al. (2009) Löfström et al. (2008), and Volman (2005), the increased learning possibilities afforded by Information Communication Technology (ICT) which have been shown to provide a powerful learning tool for students. Because of the changing in expectation that lead to traditional teaching methods become questioned. This creates the challenge of facing new learning environments, thus, supplements to the complexity and
pressures when teaching growingly international students for academic staff (Rienties, 2012).

Furthermore, Balubaid (2013) mentioned that various functions that involve teaching, the academic departments at colleges and universities perform scheduling, registration and course management. Academic departments need to decide which devices to adopt and time to apply them to let them functioning effectively because of the emerging of new technologies and the evolvement of digital culture. Nowadays, a strategic resource in organizations is knowledge, so the key decision-making is the leverage of knowledge.

According to Barber et al. (2013) many universities have already used technology in education. One of the examples brought out here is the usage of MOOC in UK Universities, which can helps both Universities and students to interact with each other even from distance at anytime. Another discussion from NMC report that all technology devices such as smartphones, computers, and other mobile devices are being used in many Universities, which is called the BYOD movement. This integration has changed the nature of work and learning activities that helped education to happen anywhere, at anytime. For instance, the personal mobile devices usage for students in Griffith University in Australia helps them to understand the subject at hand. By using the technology that students already familiar and comfortable with will help students to approach their learning easily. In addition to BYOD movement, the University of London has well-developed their IT service desk to support student connection to their wireless network, Eduroam. Moreover, University also uses many other technology tools such as 3D printers, robotics, and 3D modeling web-based applications that become accessible to many people.

In this paper, we chose Jönköping International Business School (JIBS) in Jönköping region, Sweden as the case study and the specific market for analysis and illustrate our discussion because of the availability and readiness of resources that we can research from where we study our bachelor. As stated on its’ website, the University was enrolled in 1994 and within twenty-years of development, the school has grown to a comprehensive institution offering Bachelor, Master and Doctoral education. However, JIBS is still a young institution and there are many opportunities for changes and improvements in the upcoming future. We will explain one of these opportunities in the later part.

**Indirect factors:**

Schleicher (2014) provided the resource proves that policy is an important factor in education because of its indirect influence to both students’ learning approaches and teacher’s work. Moreover, the reflection from teachers’ perspective on policy can help to make it effectively use. Schleicher (2014) also mentioned that there are four areas where the comparative results can improve policies to make the teaching profession more attractive and productive. They relate to how education systems prepare and enhance a high-quality teaching force, how they boost effective teaching through compliment and feedback, how teachers differ in their approaches.
7.2 The evolution of education

In this section, we will describe how education has changed in recent years, as well as explain all the models we will use in this section. However, because flipped classroom has not implemented in the market we chose, therefore, we will limit the discussion of flipped classroom model, but to discuss more on the description of e-learning models, hence, we would like to suggest to add the interaction aspect in flipped classroom model into the e-learning model and what will be the influence of this suggestion due to the availability of the resource.

7.2.1 Blended learning

Hiltz et al. (2005) stated that the latest in a long list of social technologies is online learning that was represented to advance distance learning by adding various augmentations, substitutions, or blending technologies with pedagogical approaches. The handling for technologies include: correspondence courses, mail, and printed materials, telephone or audio recordings, TV or videos, computer instruction, group interaction, multimedia materials and Websites, simulation and gaming, collaborative learning, asynchronous learning networks (ALN), collaborative knowledge systems, wireless and handheld devices. These technologies have been combined by most current distance courses.

7.2.2 Flipped classroom

Hiltz et al. (2005) also discussed about the changes in educational technology and pedagogy that can be seen in fifty years from now, as the changes in the nature of higher education as an institution.

Another observation is that the effective use and integration of Information and Communication Technologies (ICT) in education practices was researched in a significant volume in the recent years (Tselios et al., 2011). To differentiate the e-learning systems from the “face-to-face” learning environments is by the degree of technology usage and the gradual shift of control and responsibility of the learning progress to students, giving them the opportunity to learn at anytime and anyplace. Based on Mason et al. (2013), the increasing use of flipped classroom is primarily attributed to two movements. Bishop and Verleger (2013, p.2) said that the global technological movement that empowers the combination of information technology into education “at an extremely low-cost” is the first movement. The second movement is represented by the ideological movement and ideas that have been spread through technological channels.

7.3 The flipped classroom model
According to Abeysekera et al. (2014) and Bishop et al. (2013), there is still a missing point of agreement regarding the implementation of flipped classroom, even though this concept is an interesting topic for many researchers (Al-Zahrani, 2015). However, in flipped classroom, the activities that take place in traditional classes have to be considered before coming to class and vice versa (Stone, 2012). These activities are stated in Figure 2.

![Figure 2. Flipped classroom activities (adopted by Bishop & Verleger, 2013)](image)

### 7.4 The e-learning model - category A

Firstly, we will explain further how the model of e-learning can be applied to flipped classrooms. As one can see in Table 1, category A deals with facilitated learning models. For this category, students can come for a two-hour video conference every week and take from two to four hours of individual study, such as searching the Internet, engaging in self-paced e-learning and reading print materials within each weekly video session. In addition, the local cases, culture, and adaptations are discussed from the support of local facilitators each week. Multimedia rooms of distant learning centers are provided to students who did not have access to Internet.

E-learning is used all along the way since starting the course (reading content, and be familiar with the course), in the progress of the course (videoconference sessions for questions, discussions and self-paced activities), and after finishing the course (constructing a community of practitioners, as well as working on developing plans with feedback and review from both their friends and instructors).

As you can see in categories A, VLE is used as educational tool mostly in class and communication between teachers and students. Thereby, we chose categories A because it will connect the VLE with flipped classroom to apply in JIBS campus. The school has already had VLE and blended learning in class (O’Connor, 2014), however, by implementing flipped classroom, JIBS can enhance the education quality to higher level, that is to connect theory with practice by applying theories to activities in live class
sessions. Therefore, the school can get the expected results, that are better students’ learning outcomes (Albert and Beatty, 2014).

Categories B, C and D deal with independent study or self-paced learning models with minimal facilitation in the sense that the learner is expected to learn on his or her own. However, resource persons are always available to provide support to learners if they have any questions regarding the course that they are studying.

In category C, a completed Web-based course is designed and brought entirely on the Internet and extensively facilitated by virtual instructors and mentors, and provided an opportunity for active learning. In this course, students can absorb their study while doing their job instead of leaving the office to come to lecture. In addition, all the key concepts, suggested readings, interactive exercises, and self-tests are introduced in the course. Virtual experts, who will moderate the weekly e-discussions to augment these activities, offer the opportunity for students to ask questions and share documents that are working on peer review. By using facilitated asynchronous discussion, teachers or instructors can keep track and motivated on participants effectively during the virtual learning experience. Time for real-time basis, lead to higher-quality dialogues can be evaluated from online discussions, which can be very useful.

For category B, the course is entirely self-paced in that a person can start and end the course at his or her convenience, working through the various modules at his or her own pace, and finally taking the accreditation examination. The model works well in situations where, as in the accreditation course, passing the examination is mandatory. Obviously, if Internet access for participants is difficult or motivation level for the learner is low then this model may not work (Bonk et al., 2006).

For category D, students are sent learning materials via CD-ROMs and Web pages, where they can review at their own convenience time and place. Instead of having specific learning strategy recommended, participants are expected to make their own learning approaches, with knowledge shared validated through seminars and workshops. And preparing for these events is through independent study, for which materials are provided.

When there is a clear-cut incentive for students to upgrade their skills and knowledge, then this individual learning model suits well with the context. However, facilitated e-learning can perform much more effectively in motivating learners and sustaining their interest in situations where peer learning and knowledge sharing are key outcomes. Therefore, we will not use categories B, C and D, but apply category A that is suitable for our research in higher education.

TABLE 1. MODELS OF E-LEARNING.
<table>
<thead>
<tr>
<th>Part of a blended learning activity</th>
<th>Facilitated Course</th>
<th>Independent Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Largely Web based</td>
<td>C</td>
<td>D</td>
</tr>
</tbody>
</table>

**SWOT analysis of the e-learning model:**

Hande, (2014) explained the strengths, weaknesses, opportunities and threats of blended learning.

Regarding strengths, firstly, students can be more active in their own learning both at home and in class, they can engage in a more and more interesting classroom environment. Secondly, blended learning can help save time in the learning process, reduce exhaustion, and increase productivity because of pre-work. Thirdly, with online quizzes, students can identify the areas that they will need to review, questions that will give a very useful constant feedback on student answers. Fourthly, it is more convenient with working on assignments, viewing course content, course objectives and reading material online, thus, multimedia usage and external links become easier to understand the subject. Doing the test online for self-assessment were automatically graded and immediately. Lastly, it provided a discussion forum outside the classroom between students and teachers using the software.

Blended learning also has its own weaknesses, which are firstly, blended learning relies on concretization, coordination, cooperation, and communication in the whole organization so it is not an easy task to do. Secondly, when it comes to poor Internet connection, the time-limited setting for online assignments can be a big constraint because it can cause students to become very stressful within their study. Thirdly, there are only a certain configurations on the laptops that can access to blended learning system. Finally, to conduct the online examination, which is depend entirely on expensive technology that may or may not be available to all students that are not inside the campus.

However, blended learning can create many opportunities. Firstly, there is the flexibility of time from online exercises, which becomes important especially when it becomes hard to accommodate certain class schedules and that will help students to enjoy the work assigned, without having the constriction of location. Secondly, there is a uniform content to both local and international students, so that both can be fair on online assignments. Thirdly, teachers can enroll any amount of students instead of depend on kickoff faculty shortage. Finally, when software and hardware can be acquired and skills developed, the process of administering becomes easier.

In contrast, blended learning can also bring threats to the users. Firstly, Internet shorthand used in students assignments because students can become dependant on computers for spellings, which will decrease their English knowledge and skills. Secondly, the chat forum while multitasking online can distract them from concentrating on what they should do. Thirdly, students can exchange their identifications and password, thereby,
accomplish the assignments for others. Lastly, teachers may lose their jobs because of a hundred percent online modules.

7.5 Connect model to flipped classroom

The two concepts of flipped classroom and blended learning although they have the one thing in common that is technology, their driven is not really the same. As the reader may see within the definition of the two concepts, flipped classroom discussion is more likely based on interaction, whereas blended learning focuses more on technology aspects. Moreover, because the business school we chose has not implemented flipped classroom but they are already using blended learning in school with teaching theory formally in class. Therefore, this is the reason why we would like to suggest combining the flipped classroom activities model with e-learning model to JIBS as the supplement to enhance their interaction efficiency.

7.6 Different discussion of flipped classroom

Although flipped classroom is still limited in our research in the case of JIBS, there are many other researchers whom have argued that flipped classroom may give good results in higher education. However, it is still a controversial topic. Some scholars stated that flipped classroom is not something new in education because teachers already encourage their students to prepare themselves for their classes to be able to actively enroll in classroom exercises (Davies, Dean & Ball, 2013; Strayer, 2012). Other researchers argue that educational television and computer-assisted instruction have been applied for many years (Strayer, 2012). However, flipped classrooms integrate “the regular and systematic use of interactive technologies in the learning process” (Strayer, 2012, p. 172). One of the most important benefits of the flipped classroom is that it is not restricted to particular learners group, a certain curriculum or a specific content area (Bergmann & Sams, 2012).

Another discussion from Butt (2014), Davies et al. (2013), DeGrazia et al. (2012) that several studies on the flipped classroom have been conducted in the context of higher education to analyse many factors of the strategy’s effectiveness. Most of these researches showed good results. For instance, students in flipped classrooms were better prepared than during the traditional formal classroom activities, more excited, engaged and satisfied, and become more open to cooperative learning (Strayer, 2012). In addition, they had better examination scores, they demonstrated better proficiency when using problem-solving techniques, and were highly personalized learners (Davies et al, 2013). There are only some studies revealed different findings. For example, Strayer (2012) found that with the way the flipped classroom structured, students in this class feel less contented. Studies by Findlay-Thompson and Mombourquette (2014) and McLaughlin et al. (2013) discover no change in the academic outcomes of learners in flipped classrooms, despite the students’ positive attitudes towards this learning strategy.

7.7 The development of technology
7.7.1 The model of Technology Acceptance

Albert et al. (2015) has stated that the technology must be integrated with appropriate pedagogies to add value both to the recorded video lecture and to the in-class student experience. Therefore, to go further in depth of our choice of category A in E-learning models, the Technology Acceptance Model (TAM) will be used to look at the user acceptance of VLE by teachers and how they design the online materials through this tool to help students to understand the concepts and messages delivered by the teachers easily. The technology acceptance model (TAM) was introduced in 1986 and since then it is considered the most common and influential model theory to describe the individual use of Information System (IT) (Lee, 2003).

In the original form Davis (1989) studies how users come to accept and use a technology using two important determinants: perceived usefulness and perceived ease of use. Perceived Usefulness represents the extent to which people tend to use or not use an application with regard to their belief of helping them perform their job better (Davis, 1989).

Perceived Ease of Use - refers to ‘the degree to which a person believes that using a particular system would be free of effort.’ (Davis, 1989, p.320)

For the purpose of our thesis, to explain the usage acceptance of the LMS by the teachers and how this impacts blended learning a slightly adapted version of TAM by Keller (2007) to adjust to the educational context of VLE. (Figure 3)

Figure 3. Original Version of TAM adapted by (Keller, 2007, p4)

7.7.1.1 Limitation of the model

The limitation of this model is that it does not take into account other constructs that have derived from the original TAM when combined with other theories that study user
acceptance. For example the more complex model that derives from TAM, Unified Theory of Acceptance and Use of Technology (UTAUT) combines 8 different models of user acceptance.

Nonetheless, we share the opinion of Benbasat and Harki (2007), who argue that the transformations that have resulted in further adaptations of the original model lead to a ‘state of theoretical chaos and confusion’ (p.211) and suggest solving this problem by going back to the original theory.

7.7.2 Considerations for VLE

Previous research shows there are a number of factors that influence the acceptance of a LMS by teachers. Keller (2009) has used the TAM to assess the acceptance of the LMS in a blended learning environment and has discovered that the factors, which positively affected the acceptance of VLE, were high performance acceptance, results demonstrability and social influence, determined by culture. The most important implication of the study was that culture is of major consideration regarding the acceptance of VLE. This implies that the shared values of staff and students should be regarded as powerful considerations when implementing a VLE and this can be done by identifying ‘what staff and students regard as teaching and learning of good quality’ (Keller, 2009, p.481). The second important implication was that the perceived usefulness and added value of using VLE is communicated to teachers and students, while being praised throughout whole organization in order for the VLE to have higher degrees of acceptance (Keller, 2009, p. 480).

Other observation was that facilitating conditions such as ease of use, pedagogical and technological support are important, but not sufficient in achieving high degrees of acceptance of the VLE. Furthermore, it is important for teachers to use the VLE on a regular basis to enhance the value of education. Nonetheless, while the administrative functions of the VLE such as text communication, storage, posting and assessment have been positively accepted by the teachers and students, the opportunity for improvement appears to be on the dynamic sight of creating interaction in the VLE. In order to achieve this Keller (2009) suggests the training of teachers to use videoconference and chat functions, while also create a lively and open community among teachers in the VLE, where the colleagues can freely access and learn from each other’s work.

Another observation of Keller (2009) is the idea of open sharing, which means ‘not to prevent colleagues from viewing each other’s course material by restricting the access to courses in the virtual learning environment’ (Keller 2009, p.481). As such, a more fulfilling learning interaction can be generated in the community of teachers and students.

7.7.3 Pedagogy principles implemented in LMS:

Wang et al. (2013) used the TAM to assess whether the functions of a LMS implement principles of teaching practices and choose the ‘Seven principles of effective teaching
practices’ (Chickering & Gamson, 1987) as the second model to interpret the data. The general assumption was that the ease of use and usefulness of the assessed LMS must be in accordance with the following teaching methods: encourage contact between students and faculty, develop reciprocity and cooperation among students, use active learning techniques, give prompt feedback, emphasize time on task, communicate high expectations, respect diverse talents and ways of learning (Wang et. al, 2013). As in the E-learning model the material delivered through the LMS in this study is part of category A of a Web course. Wang et al. (2013) divided all of the activities of teachers configuring the LMS in 3 categories: interface, content, configurability. The first refers to the appearance of the website, the second to the course materials and the third to the interaction among students and with faculty. Then by looking at the extent to which these dimensions employ the seven principles when teachers use them, the conclusions were that the LMS that are easy to configure for the teachers that develop the course, lead to optimal teaching practices and course content, thus advancing the quality of web assisted courses or distance courses.

One suggestion of the authors to improve these three dimensions of LMS configurability is for technical support staff to assemble information on the recurring issues that teachers encounter when developing courses, in order to identify opportunities to improve the ease of use of the LMS.

In return improving the three dimensions of LMS configurability interface, interaction and content, leads to better implementation of the seven principles of effective teaching, which in turn improves the benefits for the faculty.

7.7.4 The likelihood of using an LMS to achieve instructional tasks

Schoonenboom (2014) and Bliuc et al. (2012) agree that there are different approaches to teaching in relation to the use of LMS in Blended Learning. For example, a teacher that would normally use an LMS to perform a task can be detracted by the difficulty of use or lack of usefulness of the LMS in a particular context. As such Schoonenboom (2014) proposes that the task at hand is less relevant to the acceptance of the technology, in this case the LMS, and instead a mix between the task, the interface in which the task is accomplished and the context is more accurate.

Furthermore Schoonenboom (2014) suggests that technical and pedagogical support should work together to identify the factors that lead to low LMS usage from teachers. The author also suggests that when offering support to use a tool of LMS for teachers, the focus should also be on the intention of using LMS to perform an instructional task, and not just on support to performing the task using the LMS. Another solution to decrease the difficulty of using the LMS is to simplify the interface of the LMS, thus stimulating the usage of the LMS.

The study confirms other previous studies that portray LMS as used frequently to distribute learning materials, but less frequent to harness the dialogue between instructors.
and students, and almost inexistent when it comes to collaborative learning (Blin & Munro, 2008; Garrote & Pettersson, 2007; 2008; Woods et al. 2004).

### 7.7.5 The future for VLE:

On another perspective, Brown (2010) considers that the ‘VLEs are likely to be replaced by Web 2.0’. According to Brown while the use of VLE has increased, the transformative effect of using this system to accomplish practical instructions is not fully grasped, as there are no widespread changes in pedagogical practices. Brown’s caution is that just as previous means of learning technologies (broadcast TV, CD-ROM etc.) have been regarded with great waves of enthusiasm before their initial implementation, afterwards they have been abandoned.

The author looks at the discrepancy between the high commercial success of VLE and the small impact that it had on pedagogy in higher education. He also looks at how the development of VLE is at its height and how Web 2.0 technologies are likely to replace VLE because of their characteristics that better solve the need for personalized tools that suit to the skills, and personality of different teachers and learners.

Even though Web 2.0 is not at the point where it can replace VLE, the rapid progress with which is heading towards, by employing its tools in institutionalized education, might mean that soon these changes have the potential to not only replace VLE, but also ‘fundamentally change the nature of e-learning and teaching’ (Brown, 2010, p. 8)

### 7.8 The model

In order to understand better our argument, we would like to draw the combination of all parts of the models together in the figure 4 below. As we have mentioned above, the two concepts have one thing in common, which is technology.

Furthermore, the technology that teachers mainly use in class is VLE. As such TAM model is being used to assess the present user acceptance of the VLE by teachers. Additionally, we look at how VLE can be improved to adapt to a blended learning category A scenario, that is emerging towards flipped classrooms.

The model that we are going to use to analyse the present state of technology is TAM.
This chapter explains the methodology and method adopted to conduct our study. It begins with methodology section, clarifying the research paradigm beforehand to clear out some confusion and misunderstanding associated with the methodology. Then it proceeds to describe the main features of the chosen methodology, with an explanation of their appropriateness to our study.

Following is the method section, which composed of illustration of the method for both collecting and analyzing data. On the method for data collection part, in order to reveal as close as possible to our collecting process, a descriptive and straightforward demonstration is embedded within context to show a cause-effect relationship of how and why the events happened. Simultaneously, with a detailed and rigorous illustration on
how we analyze our research data, the part of method for data analysis is presented as followed.

A description of the limitations within methodology and method is placed at the end of chapter, explaining the pros and cons of the chosen method with reference to our own empirical work. Moreover, the strengths and weaknesses relevant with regard to the purpose are discussed, with the aim to reveal the reliability, generalizability and validity of our study.

8.1 Methodology

Before proceeding to discuss the methodology, it is worthwhile mentioning two main paradigms that are philosophical frameworks guiding how research should be conducted. One is interpretivism, the term that is underpinned by the belief that social reality is not objective but highly subjective and it is shaped by our perceptions (Collis & Hussey, 2009, p.57). And the other one is positivism, demonstrating that reality is independent of us and the goal is the discovery of theories, based on empirical research of observation and experiment (Collis & Hussey, 2009, p.56).

Given the characteristics of our research purpose and question, our study thus qualified as interpretivism out of the two main paradigms. It is impossible to separate what is studied in our research from what exists in the social world. The focus of our study is placed on exploring the complexity of the relationship between education and technology with a view to gaining interpretive understanding, which in the end, allow us to adopt a range of methods that is associated with interpretivism for analysis. These methods are described by Van Maanen (1983, p.9) as ‘seek to describe, translate and otherwise come to terms with the meaning, not the frequency of certain more or less naturally occurring phenomena in the social world (cited in Collis & Hussey, 2009).’

Within our paper, we decided to choose a case study as our methodology. Collis & Hussey (2009) delineated a case study as a methodology that is used to explore a single phenomenon (the case) in a natural setting using a variety of methods to obtain in-depth knowledge. With regard to the main feature of case studies, we may refer to our study in which not only a certain phenomena that technology brings change to education has been explored, but also a particular context that is virtual learning environment has also been provide for further understanding.

Moreover, there are four different types of case study according to Scapens (1990), which are descriptive case studies, illustrative case studies, experimental case studies and explanatory case studies (cited in Collis & Hussey, 2009). Thereby, we archived our study into explanatory case studies where existing theory is used to understand and explain what is happening.

Since we are students from Jönköping International Business school (JIBS), selecting JIBS as a critical case does not only encompass the issues in which we are most
interested, but also in turn, benefits JIBS to cultivate a better higher education to foster students. Moreover, it will benefit the brand image of JIBS, to stand out amongst the increasing fierce educational environment. In additional to the fact that we are students of JIBS, we are also attempting theoretical generalizations where we propose that the theory applied in JIBS case study can be relatable to other universities and private business schools. Eventually, the purpose of our research is better reflected on the JIBS case study through penetrating the research question on the methodology.

8.2 Method

8.2.1 Method for Data collection

8.2.1.1 Qualitative data

Based on the interpretivism paradigm we are under, it is basically qualitative data that we need to collect for our research. On the contrary to quantitative data, which is normally precise, and can be captured at various points, qualitative data is normally associated with the feature of transient (Collis & Hussey, 2009). Thus, there are several methods that can be used to collecting qualitative data, such as interviews, focus groups, and observation.

However, in order to ensure high degrees of validity within qualitative data, it is also essential to understand the data within context. And it requires us to collect contextualizing data that usually can be found in literatures. We thereby referred them to secondary data and two different methods that pertain to collecting primary data and secondary data are presented separately as followed.

8.2.1.2 Literature Review

As literature refers to all sources of secondary data, we thereby collected our secondary data through literature reviewing. By adopting this method, it helps us to better understand our qualitative data within context.

In search of literatures, we used some keywords to define the range of our searching and choose among the high relevance literatures of our topic. Such keywords are learning theory, education and technology and flipped classroom, etc. Besides using keywords, we also take a look into the frame of references each literature has so as to expand our search margin on similar literatures. Moreover, due to the fact that the topic is based on educational background, we need to make sure that everything existing supports our argument and point, for instance, some of the keywords such as web 2.0 are being discussed within educational context.

When we are conducting the literature review, it is critical to first summarize all these previous research and perform a deep evaluation on them in order to find the existence of gaps or connections among them. By doing so, we are not only allowing reader to
understand why we are pursuing such particular research area, but also exhibit a good reasoning behind the research question we selected to study.

8.2.1.3 Interview

As for our study, making a comparison with other methods, interviews are the most suitable and relevant method that meets the attributes of our case study. Moreover, since we take a stand in terms of educator’s perspective and in turn, we are giving recommendations back to them, interviews make most sense to our research purpose.

Given that we are conducting a study under an interpretive paradigm, we decided to choose a non-random sample in which we can limit the amount of participants with experience or skill of the phenomenon being studied. In our case, we had five interviewees in total. They come from different cultural background, are currently working involved in various occupations and engage different roles in decision-making within university. However, they used to work within similar projects that related to both technology and education, such as Pingpong improvement. More importantly, they all are willing to take part in our survey.

We select our interviewees through the recommendations of our supervisors and our interviewees. In practices, the involved participants actually initiated providing us with further contact persons. As a result of that, we are able to extend our sample of participants. Moreover, we continued by collecting adequate raw data for further study.

After determining the participants, we set out to design the interview questions and to choose the type of interview. Both unstructured and semi-structured interviews were taken into consideration. To ensure that we could gain maximum information, it was essential that us as interviewers, probed the interviewees by asking questions that required them to elaborate on their initial statement, which meant a pre-planned list of questions and probes was of particular importance to us. More details regarding interview questions, study participants’ information and interviewed dates can be found the in the Appendix. We decided to rule out any questions that are likely to create high sensitivity to the interviewees on account of avoiding discomfort feeling in that interviewees and also because it might lead to an unwillingness to tell the truth. Thus, we applied to protect the validity and authenticity of our collected data.

As a general rule, we make sure that when the interview takes place, we inform our interviewees of the purpose of our research and obtain their consent to reference them in our paper. Besides, it is also stated that the interview time is approximately 30 minutes to 60 minutes. Then we started off the interview with applicable device for recording research data. In our case, we used a phone to create the recording. In addition to audio recording, we also used note taking that allows us jot down some main points, which supported the starting off the analysis process and aided to subsequent interpretation.

When we are about to finish the interview, the method we used to let the interviewee know is to say that we have one last question and ask whether he or she has any final comments afterwards. It is also necessary to give thanks to them. After we have left the
interview, we move to next phrase for data analysis and more detailed method will be introduced in the following subsection.

8.2.2 Method for Data analysis

In general, the choice of method for analyzing research data depends on the paradigm and on whether the data are quantitative or qualitative. However, the collection of qualitative data under an interpretative paradigm is actually synchronous to the analysis. In practice the analytical process should start as soon as we begin collecting qualitative data, and it is vital that you do not collect data until you have decided on the method of analysis.

As abovementioned method for collecting data, it is no doubt that we are facing a large volume of raw data, which are the interview transcripts in our research. Before deciding on whichever method we are going to use, we must adopt the data reduction as Miles and Huberman described, ‘a form of analysis that sharpens, sorts, focuses, discards and reorganizes data’ (cited in Collis & Hussey, 2009, p.167). In terms of the attributes of data reduction, data reduction can be categorized into two types. One is continuous data reduction, which involves discarding irrelevant data and collating data where relationships of interest exist; the other one is anticipatory data reduction that occurs when using a theoretical framework that leads to certain data being ignored (Collis & Hussey, 2009). Data reduction of text can be achieved by desexualizing the data, which means that the interactions can be summarized. For instance, the interviewees gave you information about who he or she communicated with at a certain point, by drawing a network diagram. Data reduction is a key part of analyzing qualitative data as you will not ignore or miss some of the data you have collected when you are familiar enough with your data so that you can determine what is relevant and what is not.

After spending a considerable amount of time on data reduction, we move on to select a suitable method of analyzing data. According to Miles, Huberman & Saldaña (2014), a comprehensive guide on how to use data display was provided, such as network, matrix, chart or graphs, and it unravels the mysteries and starts off our analysis process.

Data display is a summary of data in a diagrammatic form that allows the user to draw valid conclusions (Miles, Huberman & Saldaña, 2014). There are unlimited types of displays, which can be generated from research data. However, networks and matrix represents the two major categories amongst other countless types of displays. Given the networks are designed to display a complex sequence of events in terms of both chronological order and relationship, we tend to choose matrix as it displays the data with the changed state of individuals, relationships, groups or organizations. Moreover, due to the length and unreduced text in the form of our interview transcript that is dispersed over many pages, it is not easy to compare two or three variables at once. This approach can become overwhelming and make us feel overloaded. In addition, the same problems probably apply with even stronger force for readers to read our final report.
To sum up, we firstly used data reduction to be familiar with our empirical work, and then we start using data display, which requires formatting the template in the beginning. Since there is no fixed canon for constructing a matrix and previous researches are independent from each other, we cannot easily enter our data into any existed templates for our own use. Therefore, in order to create our own data display, we need to engage think display beforehand. Think display requires us to look at our research question again and put it in the forefront of your mind while finding the key variables that is relevant and available. By doing that, we can generate a roughly sketch of our matrix outline. After having a matrix outline on paper, we will enter the data into the matrix. The process of data entry needs certain type and level of data; for instance, there are summaries, abstracts, and research explanation, to be able to display in a plausible and clear format. Besides, it expands our understanding towards a problem-driven direction. When we have done think display and data display, what have left is to make inference from the matrix we suggested before. And it will lead us to empirical findings, which will be discussed in the next chapter.

8.3 Trustworthiness

As in such a highly visual culture, present data in a visual format rather than just words description can make a more effective and memorable impact on both researcher and audience.

In addition to what we mentioned above about the lengthy and unreduced attributes of the data, they are also sequential rather than simultaneous. Data display allows us to restructure and reduce the data in a visual form other than extended text. Furthermore, it helps capturing high relevance of the data in conjunction with our research question in a sufficient and rigorous way. Moreover, the process of constructing matrix is creative yet systematic that broadens our understanding of the substance and meaning of data, even before entering the information.

However, there are some limits in pursuing this method of analyzing data. First is the matrix construction that is usually a matter of few minutes if you have a pre-structured outline in mind, but if we want to create a whole new sketch of the matrix, it usually takes more time than we estimated. In the level of fulfilling the purpose of finding the answers to our research questions through the chosen method, data display has its own competitive advantage of providing researchers a visual way of thinking, preceding action. Although it may contains risks that are poorly structured basic matrix or networks leading to confusing and dispersed data analysis.

Generally speaking, the trustworthiness of our study is both reliable and valid, because the paper follows the logic of reasoning and tries to extract the most appropriate data for the study.
9. Empirical findings

This section begins with introducing each interview by providing a short background about the interviewee in **bold letters** and explains the main point that brought up during the interview and subsequent implications. Then we proceed to summarize the interview together in conjunction with reporting of descriptive data. First we generalized those five interviews separately as following.

**Andrea Resmini** is a senior lecturer whose expertise is in the area of informatics. He is also an information architect who has been working with some architecture of information before becoming a teacher and researcher in Jönköping University. He believes that when technology gradually penetrates into university, it changes the way students see everything and it also challenges the outdated LMS that the university had before. Thus, it requires teachers to change the way they view students as well. Additionally, it is also important for teachers to have time and motivation to learn new things such as technology in our case.

**Anna Blombäck** is an educator from the leadership team of JIBS. Her job mostly falls on monitoring and supervising what is happening in the school as she clarified in the interview: ‘The role of leadership in JIBS is to facilitate everything that happens, we don’t create the operations, our faculty does’ (Blombäck, A., personal communication, 2015-10-13). Moreover, she states that our school should ensure that we have the right type of learning environment and knowing when our faculty is ready that is essential to facilitate and support whatever will happen, which in our case, is technology that brings changes into education. The main point of her interview is taking a stand on a more macro perspective than a personalized opinion.

**Carol-Ann Soames** is a lecturer with a major in English teaching. At the same time, she is a technology enthusiasm, whose expertise contains vast technology knowledge. Moreover she is a pedagogical champion that helps the teachers embrace new technologies. She sketched a blueprint about how she imaged a good learning environment would be in our school and provided some great examples that have already happened or are happening in other universities around the world. In addition, she was also involved in implementing Ping Pong in the initial stage and gives us opinions about how she feels Ping Pong with other learning tools appeared as a result of technology development. Moreover, the main point she brought up in the interview was the description of a combination between pedagogical teachings using technology.

**Linda Jigegard** is from IT service of JIBS, providing IT help for both students and teachers. She mainly provides valuable insights about the current learning management system that JIBS has been using so far, which is Ping Pong. As we probe the question as how does she see the upcoming trend of technology will bring changes to the outdated learning management system, she clarified that it is a long way to go about changing and replacing with better version of learning system. However, what we can do now is to find out the integration of Ping Pong with other extended functionalities that technology
provides. As she expected and stated ‘Ping Pong’s usability should become better, doing things in a faster and easier way. Drag and drops alike functionality is what we want to see more in future.

Christina Keller is a professor that enjoys more than 20 years reputation doing the academic work within informatics such as virtual learning environment. The main point she made during the interview is about the whole environment Ping Pong has as now in JIBS. Teachers have different opinions when it comes to using Ping Pong and towards learning new technology. As she comments ‘many teacher have lots of pressure. If the technology could enhance and take away some workloads.’ Moreover, she suggests that it takes time to make things happen or make changes happen within JIBS as well as most other interviewees’ do (C. Keller, personal communication, 2015-10-10).

As for all five interviews indicated that the advent of Internet and technology in the world has significant impact on the education organization and their LMS. Thus, we identified some key ingredients as our empirical findings from the interviews, which are virtual learning environment as Pingpong, technology brings changes into education system that generates such flipped classroom, MOOC as a recent response to the changes happening outside. Moreover, all of the abovementioned interviews admitted that technology brings changes into university and as a result of the ongoing technology advancement; a revolution is likely to take place within university. Therefore, it urges teachers to combine pedagogical and technological knowledge to create new ways of blended learning and flexible learning. What technology brings forward is no longer just a trial of testing the functionality of university’s IT department, but it is rather changing and challenging everything that happens in the school.

What differs between interviews, however, is the standpoint of different educators. The role they engaged within school and the expertise each of them owned affects the way of how they think and the focus is varied on their role. Anna Blombäck, for example, is from the leadership team of Jönköping international business school, so she has to consider making changes in order to respond to the technological versatile through a macro-thinking way. Andrea Reminis, is a former information architect and enjoys abundant knowledge within informatics. When facing the challenges from both education and technologies, his focus mainly lies in the technology aspect, as he is interested to know what technology tools can do for us. Such distinct characteristics between participants reveal that to make changes happen, all the parties are required to cooperate: leadership team, IT department and teachers themselves-all are making efforts together and when they can meet in the middle, changes would eventually happen.

Additionally, there are some differences in attitudes towards the great change that is happening in recent years. Even though a revolution is seems to be taking place inevitably, teachers’ reaction or attitudes towards the new technology as a whole fell into two side, positive towards the changes and negative respectively. According to all five interviewees, the common finding was that some of the teachers are delighted to embrace new technology and changes; however, some of the teachers, the vast majority of those who are fairly older age or have constraints towards learning new technologies express a
lack of trust these technological tools. They would rather stick to the conventional teaching method in which they feel more secure and familiar.

10. Analysis

In this section, we will compare the empirical results we got from five teachers interviews with our frame of reference in order to understand how the theory is implementing in practice and how practice can be different and supplement to the theory.

10.1 Pedagogical research

All five interviews confirmed to the fact that blended learning is being used mostly in class now in Scandinavian Universities especially in JIBS. However, according to Carol’s interview, the risks of blended learning are firstly, students can cheat if blended learning can be remote. This is also the threat that Hande (2014) talked about in the research. Secondly, student can just copy and paste what was written on the Internet but not write their paper themselves then it is plagiarism. Hande (2014) discussed a similar thing that is the Internet shorthand. Beside, many people blog with serious capacity that can make students cannot identify the difference between a peer-review journal and a blog. Because students can get anything on Google search engine, and what they have learnt so far is to read, skim and scam, so they go for the easiest things. This makes them never going further than that. That is really dangerous that they do not see the difference. Students are more familiar to spoken language so they struggle so hard in order to write academic writing, which is meant to be clear and concise, not get lost in mysticism. (C. A. Soames, personal communication, 2015-09-29). Hande (2014) have not touched upon these points from Carol’s interview.

10.1.1 Indirect factors

In addition, the empirical data shown that there are many aspects that need to be considered before applying flipped classroom, such as cost (A. Blombäck, personal communication, 2015-10-13), policy (A. Blombäck, personal communication, 2015-10-13), teacher development (A. Resmini, personal communication, 2015-10-05), and technology improvement (A. Resmini, personal communication, 2015-10-05). These factors can influence indirectly to students’ study approach, because it is not only the tools and materials for flipped classroom, but it is also the learning environment and support for students. Especially, Jibs is an international school, therefore, it is very important for the University to help the international students come from all over the world to adapt to the new environment, make new friends, new connections and basically, a whole new life. According to the result founded by Program for International Student Assessment (PISA), the success of education systems can be depended on the policies and practices that can
indirectly influence the learning outcomes or achieve rapid improvements. Additionally, to get the best results from policies and other practices implemented is to base on teacher's perspective because the quality of an education system cannot exceed the quality of their teachers and their work (Schleicher, 2011). However, according to Anna’s interview, policy is not the priorities to work on at the moment, because all the changes will need to concern financial resources.

10.2 The evolution of education

10.2.1 Blended learning

Four out of five interviews from Andreas, Anna, Carol, and Christina also give us an overview of the changes in education. From having formal lectures, to blended learning by using different technology inside and outside the classroom (C. A. Soames, personal communication, 2015-09-29); (A. Resmini, personal communication, 2015-10-05). According to Carol, nowadays, many mobile devices and Internet that can support students’ learning and everyday lives. However, according to Anna the threats associated can be troublesome for teachers, because they know blended learning is attractive to students and they want to get more students to study at their school, while also keeping the quality in education.

10.2.2 Flipped classroom

In two out of five interview, the teachers mentioned that the possibility of implementing flipped classroom is quite low due to many constraints as well as risks associated with it (C. A. Soames, personal communication, 2015-09-29); (A. Resmini, personal communication, 2015-10-05). Moreover, in another interview, the interviewee also consider this change as a challenge, due to the resources limited and quality in education (A. Blombäck, personal communication, 2015-10-13). We will discuss further about this obstacles in the model section.

10.3 Technology development

The technological challenges of using Ping Pong

From the interviews, the general outlook on technology acceptance of the VLE Ping Pong in JIBS from teacher’s perspective is low. Mostly teachers agree that there is a low perceived ease of use of some of the functions, and a low perceived usefulness of others due to lack of specific purposes or time consuming workflow.

Andrea considers that PingPong is overrated compared to the technology that society has access to in this day and age. Christina considers that the perceived usefulness and ease of use of Ping Pong is ‘lower than it could be’. Carol regards PingPong as ‘having the capabilities, but there is a tedious amount of work in between’. Linda considers that
PingPong can do anything a teacher wants to do, but ‘drag and drop functions are something we are looking for in the future’. Christina divided the functions of Ping Pong in two categories: the ones that are useful in their present form and the ones that need improvement. From the first category she mentions the static functions such as sharing documents or hyperlinks to web pages that would be difficult to access otherwise. From the second category she mentions the dynamic side of features that generate interaction.

Andrea agrees with Christina that PingPong is useful for tasks that require course administration and distribution of courses, but he said it is not suitable for flipped classrooms or a blended learning environment. Even if Andrea considers that PingPong is useful for administrative and course distribution purposes, he expressed dissatisfaction with some of the features, i.e. the e-mail function, which asks for repeated confirmations when sending an e-mail or which sometimes does not properly sync emails on a mobile device. He also expressed dissatisfaction regarding the double amount of work that teachers have to do when transferring a new version of a previous course. These features detract the developer teacher from the intention to use the LMS and cause dissatisfaction by requiring more time to accomplish their goals. On the functions that have dynamic features of interaction such as discussion groups, Andrea suggests that Web 2.0 tools such as Facebook are preferred by students, which results in no intention to actually use the LMS Ping Pong for this purpose.

In a study of Wang et al. (2012) Facebook was used as a LMS in a blended learning environment. The implication of the study was that Facebook can be used as a complement to a Higher Education LMS to encourage social interaction between learners, a feature which previous researchers found insufficient (Keller, 2009; Scboom et al., 2014; Mazman and Usluel, 2010.)

Similarly, when the English teacher Carol was interviewed about the existence of another social interaction function: discussion forums on PingPong, her opinion was that due to the lack of purpose of discussing subject matters on discussion forums, which is related to the fact that students do not receive grades, the perceived usefulness of the tool is low. Carol further compared this feature with that of general internet Webinars which have a specific purpose for discussion forums, allowing for more interaction between teachers and students in a shorter period of time compared to the time in class. Previous researchers such as Wang et al. (2013) look at how LMSs in Higher Education are tied with the seven principles of effective teaching practices, which in the case of the discussion forum would be: ‘encourage contact between students and faculty’ and ‘develop reciprocity and cooperation among students’ (p.149). Meanwhile, Keller (2009) advised that the ability to build relationships and create dynamic discussion had a general low support in VLE. Later when we interviewed Christina her opinion about this feature of VLE regarding JIBS she expressed that a higher perceived usefulness would be possible in a scenario where the campus seminars would be mixed with the discussion forums: Christina recognized that seminars are fast and synchronous, while forums allow for reflection. Combined, the two have the potential to allow for ‘different people to shine’. This point also relates to the idea of using the tools of VLE to adapt to the principle of effective learning: ‘ respecting diverse talents and ways of learning.’ (Wang et al., 2012, p.149).
We agree with Schoonenboom (2014) that the pedagogical intention of using a technological feature of VLE should be identified when support is offered to teachers. Furthermore, Christina elaborated that another ingredient that made the difference in the actual use of the discussion forums between JIBS and Jonkoping School of Health is the fact that early at the implementation of the same VLE in both schools, for teachers in Health School it was mandatory to use PingPong and all the educators attended courses on how to use the system. In Christina’s perspective this gradually allowed for a higher perceived ease of using the system, which in the long run resulted in an increased actual use of the LMS compared to Jibs.

Linda’s perspective is that PingPong is underrated due to the fact that teachers do not possess the knowledge to use Ping Pong to achieve their goals. In Linda’s opinion everything that a teacher wants to do in a course can be done in Ping Pong, once the right set of skills has been accumulated.

With regard to the features that have a higher user acceptance and are generally used in the VLE, Linda mentions content creation and handling documents as having a higher perceived ease of use for most of the teachers. The ease of use decreases to more advanced tasks such as group assignments and their connection to groups and objectives. Linda’s observations are that once the teachers understand the perceived usefulness of learning the function, their intention to use them also increases. The feedback of the course is that the teachers save more time by using Ping Pong and the quality of the course is on the rise.

**Challenges that impede the development of technology:**

Regarding the PingPong digital literacy courses for teachers, Linda expressed the attendance is voluntary based and that some teachers are detracted from taking the course because of lack of time and unpaid hours. However, Linda considers that taking the course would increase the enjoyment of teachers and students, as well as the quality of the courses. Christina expressed the same challenges, and added that an LMS that is ‘easier to use, more intuitive... that can save time and that does not take much time to learn ’would be a desired result .This perspective is also shared by the study of Wang et al. (2013), which confirms that an easily configurable LMS for teachers would lead to improve teaching practices and course content, thus advancing the quality of the course.

Regarding Anna’s opinion, the challenge for JIBS is to infuse teachers to see the benefits of digitalization. Nonetheless, there is no specific policy to impose on teachers to be digitally literate or to use technology. The risks of such a policy in Anna’s opinion is the potential to become too detailed and thus inflexible. However, the efforts that are made at the moment by the university are cumulated in having a pedagogical champion in the university who offers suggestions to teachers that are ready to embrace the benefits of digitalization. Furthermore, there are workshops for teachers where they can learn about technologies that can improve the teaching experience and flip the classrooms.
Nonetheless, according to Anna there are challenges as different courses and contexts require different approaches. Schoonenboom (2014) warns about such challenges and recommends that the focus of supporting the teachers should be on the intention of using the technology to perform the pedagogical task, rather than just on support of performing the task with the technology. From Anna’s interview, the authors understood that the general approach is not to impose, but rather to prepare and be ready to support the teachers that are ready to embrace technology.

In the NMC report for higher education (2015), that casts a light on the present and future technological trends that drive educational changes on a worldwide level, the challenge of improving digital literacy is considered a solvable challenge, that ‘will require policies that both address digital fluency training in pre- and in-service teachers, along with the students they teach. (NMC report, 2015, p.24). As such the authors also encourage a dialogue between the leadership of the universities and the teachers and IT department regarding the importance of a policy to advance digitalization.

**Solutions to technological challenges:**

Christina, Carol and Linda share the opinion that the change has to be part of a policy change in the University. Carol suggests that if a policy would be in place the information would filter down to the teachers and they would be more propelled to change their attitude regarding technological approaches in pedagogy. Christina and Linda both believe that the teachers that take the courses in digital literacy could act as potential change makers and deliver higher quality courses. We recommend that these teachers are recognized and according to Keller (2009) openly sharing the content and access of their courses, could in turn encourage other teachers to learn and improve.

Andrea suggests that the next generation of students is going to push this changes and that there is going to be a need for teachers that are better prepared to tackle digital literacy. From Andrea’s Perspective it is important for Higher Education to recognize and utilizes the teachers who have online visibility, for example on platforms such as Twitter or Facebook, that students tend to use, but also on tools such as Slideshare related to the distribution of educational materials.

Christina and Andrea both suggested that it would be useful if PingPong would be simplified. Christina’s suggestion is changing the hierarchical menu and instead providing a more intuitive LMS that has drop and drag features, similar to mobile applications and suitable for modern times. This would allow teachers to save time and learn to use the system easier. Linda shared the same perspective. Andrea suggested reducing PingPong to strictly tackle administrative tasks and distribution of materials. Other tasks that require interaction would be tackled by web 2.0 technologies that are more efficient. Here Andrea gives the example of students using Facebook for group work, or Google Docs for creating documents. Andrea also expressed the idea of online visibility of teachers and his preference towards tools such as Slideshare, which have a higher perceived usefulness when sharing course materials because of the online visibility and the possibility to also regard related materials from other teachers.
On a similar note Keller (2009) states that an open community of teachers in the VLE that would allow colleagues to freely and openly access each other’s work would be an opportunity to develop the dynamic features of a LMS: NMC Consortium (2015, p. 14) agrees with Keller (2009) and recognizes that Proliferation of Open Educational resources which implies ‘openness towards a common vision… not just free in economic terms, but also in terms of ownership and usage rights ’ is a trend to be implemented in education in the next three to five years.

On another perspective, Anna expresses caution towards the integration of Web 2.0 technologies in achieving long term-educational tasks due to the fluctuations of Web 2.0 tools. This perspective was confirmed to us by Carol who uses Web 2.0 tools in class and experienced challenges with some of the tools that she used under a free license in a beta phase and which later required payment, and in turn disrupted her from further using the tool in teaching.

The authors partake the opinion of Anna, regarding the importance for teachers to know how to use the Web 2.0 tools that students are likely to use in the education, but not to tie the development of a LMS on these tools due to the constriction of fluctuations and life span of these tools.

Nonetheless as Brown (2010) predicts VLE are in danger to be taken over by Web 2.0 technologies, due to their perceived usefulness and ease of use as well as the ability to better solve the need for personalized tools in learning and teaching as Andrea also mentions. Regarding this point, the authors consider that it is important for teachers to take into considerations such changes and monitor what tools students are likely to use and make attempts to use these tools in flipped classrooms if they have a high degree of user acceptance. However, as Keller (2009) stated it is also important to take into consideration the different cultures in higher university and work together to identify the ‘shared value of what is considered teaching and learning of good quality’. (Keller, 2009, p.481)

At the moment all of the changes desired regarding the solicited development of PingPong are to be communicated to a user group of PingPong that discusses with the faculty representatives once a year. As Schoonenboom (2014) stated it is important for technical and pedagogical support to work together to identify the factors that lead to low LMS usage from teachers. Both Carol and Andrea expressed that PingPong is not mandatory to use, but still there is a pressure on teachers to use the LMS, and thus it is important to look beyond the low usage, because there are such cases when teachers are pressured to use Ping Pong even if they would not have an intention to use and would rather opt for other means of technology such as Web2.0 technologies to accomplish the tasks.

**Recommendations:**

The authors consider that it is important to have a dialogue between University leadership and teachers and decide if the LMS is mandatory to use or not and identify what are the
specific factors that detract teachers from using it, factors which would later be communicated to the Ping Pong developer group.

Our second recommendation is to enhance the incentives that propel teachers to take the courses in digital literacy. Due to the high investment of changing the actual LMS, we consider it is important at least for all teachers to be digitally literate with the present technology and only then work together with developers to create change. We do not consider that switching to a new platform would be a feasible solution due to cost and time restriction. Neither switching to integrate on a mass level Web 2.0 tools due to the determinants of culture and the fluctuations of Web 2.0 tools, as well as the fact that the IT department cannot give support on these technologies.

10.4 The models

10.4.1 The flipped classroom model

In order to apply this model in reality, the course designers will need to consider many obstacles that need to consider within this model but have not been discussed thoroughly in any literature. In Andrea interview, he explained the constraints that need to consider when having course online such as teachers need to train and practice themselves of how to use technology, the content of the course will also need someone to go through and proofread everything, to have the person who can shoot the video as well as teachers should be good enough for not being so boring on video but still need to be different from being in class. Moreover, the courses need to be divided by topic, by teachers, and research on different scientific classifications. In addition, Carol also mentioned that there are some risks within the flipped classroom that students might not do and learn what teachers have uploaded online, and there is nothing certain that students will engage to it.

Furthermore, Anna said this model teaching in class can be attractive to students in one side; but the University also supports students to get contact with the regional, international companies, and many other organizations so students can get access easier to their future career. And that way can still help students to get experience from their future employment as well as to create some more relevant to enhance better education. The second part is to attract the students to come to campus but also to make sure that student will get a higher quality of education, which mean to plan on teaching the course carefully so students can learn effectively.

10.4.2 The e-learning model

Thanks to the improvement of technology nowadays, students can get more access to study for whatever they want. Andrea also said that the development of technology nowadays has changed the way students use technology, for example, with smartphones they can look up things, suggest and talk to their friends. So this can help the e-learning
model to apply in reality better and faster. In addition, Andrea confirmed that the big change in education will be in our generation or the generation around us and that will help students to get information faster about what’s happening around the world, not like the previous generation.

However, the world today has no idea how it was fifty years ago, they take this for granted that they can search for anything. Therefore, they might not feel so appreciated for what teachers do in teaching with technologies.

11. Conclusion

The purpose of this thesis was to examine the challenges in education and technology at Jibs and give recommendation on the VLE and flipped classrooms strategy in a campus based learning environment.

The overall contribution of the thesis is to present improvements that can be done to the VLE Ping Pong in JIBS, a campus based university that uses the VLE as the main technological tool for conducting teaching activities. Also the thesis gives recommendations towards flipped classrooms implementation.

**How is the VLE PingPong suited in an e-learning perspective, teaching with technology in class?**

The VLE is the main technological tool that teachers at JIBS use and can help both teachers and students to enhance education efficiency. Nonetheless from a technology acceptance stance, the present state of Ping Pong is lower than it could be. The system is generally perceived as old for modern times and teachers are requesting for improvements: simplification of the menu and of the workflow of Ping Pong, the implementation of drag and drop functions that simplify learning and using the system.

A series of features of Ping Pong have also been identified as lacking of perceived usefulness, because of their replacement by Web 2.0 technologies that students prefer to use, i.e.: study groups replaced by Facebook groups.

Furthermore as the digital literacy classes in JIBS are not mandatory to all teachers, some of the teachers are not inclined to participate due to time constraints and unpaid working hours. As such we identify there is a discrepancy in the way that Ping Pong is used by different teachers in Jibs. Also as there is no policy in place that tackles the LMS to filter down to all the teachers there are differences in attitude regarding the usage of the VLE.

**How is change created in the university to adapt to flipped classrooms in higher education?**
To adapt to flipped classrooms in higher education, the University will be required to make changes in policy, teacher's development, and technology improvements, all of which have costs in time and investment. Furthermore, to actually implement flipped classroom, the University will need to experiment a few times to create a suitable change according to the context. Until the changes in the LMS will be solved to accommodate to the requirements of a flipped classroom platform, especially on the dynamic side of creating interaction in the learning community, Web 2.0 technologies can provide support towards flipped classrooms, i.e. multimedia, micro blogging, and video sharing. Aside from flipped classrooms, MOOCs is a different movement that will take place in JIBS, which shares a common ground that of digital classes that students can watch before interacting in class, just as in the case of flipped classrooms. Thus, MOOCs is one of the changes university is working on made to keep up to date with the modern times, and by doing so, it is likely to open various opportunities toward either combining with flipped pedagogies or assisting them in higher education.

12. Discussion

This chapter discusses four different phenomenons we identified aside from the empirical data in relation to the purpose and the research question, due to the relevance of our thesis topic. In doing so, we are able to provide more speculative thoughts than only empirical-based. We then proceed to describe the strength and weakness of our thesis, to return to such issues after analysis. We finalize the chapter by giving suggestions for future study.

12.1 The role of teacher

After analyzing our theory with the empirical data, which brought us to conclusion that the role of teacher in the interaction process is very important. Although the most important factor for learning is the approach that students have, the impact of the teachers’ influence should not be underestimated. In order to become effective learners, good teachers are the first condition for most students. Teacher’s views on teaching and learning can affect what and how their students learning looks like. According to Trigwell et al. (1999); Kemer & Kwan, (2000); Prosser et al. (2003), an unbroken chain runs from the teacher’s perceptions of the rules of teaching and learning, to how teaching is planned and applied and further to which learning strategies students choose and ultimately to student learning (Bonk et al. 2006). On one hand, there is a correlation between development and conceptual change, and on the other hand regarding students’ deep approach to learning. Therefore, there are links between teacher-focused teaching, which is orientated towards knowledge transfer and students’ surface approaches to learning.

It has also proven to be important that ideas concerning learning and teaching form a coherent structure. According to Prosser et al. (2003), dissonant teaching strategies, which may include for example the teacher trying to change the students’ conceptual
understanding by transferring their own knowledge structures to students, also gives rise to surface learning approaches (Bonk et al. 2006). This suggests that teachers need to have well planned teaching approaches, based on educational research and reflection about their own and others teacher’s experiences.

The relationship between teachers’ approaches to teaching and student learning is not necessarily unidirectional (Bonk et al. 2006). It is conceivable that a student group with surface learning strategies influence teachers to adopt more knowledge transferable approaches. Teachers adapt to their conceptions depending on the teaching context he or she is reflecting on (Bonk et al. 2006). However, teachers’ strategies are more stable than students’ and it seems likely that these affect students to a higher degree than vice versa (Kember & Kwan, 2000). When teachers change toward a more student-focused approach to teaching, the students’ learning strategies also become more vivid (Bonk et al., 2006).

### 12.2 MOOCs

In addition to the previous pinpointed flipped classroom as our suggestion to the research question, we also discover that the potential of MOOCs in making changes happen for higher education, as a result of connecting technology and conventional teaching.

The philosophy behind MOOC is to render all knowledge accessible, without any geographical or social boundaries (Pomerol, Epelboin&Thoury, 2015). When the MOOCs come into universities, the ‘educational revolution’ seems to happen. In order to explain better and further on the transition between traditional teaching and MOOCs, we shall use the term ”flipped classroom” to describe this situation. Why ”flipped”? Because it is the learner who becomes ”master of the dialog” after having taken the MOOC (Pomerol, Epelboin & Thoury, 2015).

However, flipped pedagogy and MOOCs are two different movements that are used in conjunction with one another, the common characteristics they both share are the idea of a digital class which the student can watch, before interaction with the teacher in the case of flipped teaching, and before the exercises and discussion in the case of the MOOC (Pomerol, Epelboin & Thoury, 2015). Pomerol et al. (2015) also suggest a tutored MOOC as a compromise between these two approaches. Furthermore, the introduction of flipped teaching changes the role of the teachers and the way of offering high quality teaching, by providing opportunity for teachers to once again become an involved tutor, attentive to the student’s progression, all while refreshing the pedagogical skills.

From the perspective of higher education, the future lies with tutored MOOCs. According to Pomerol et al. (2015), the tutored MOOCs contains, a mixture of online classes to be followed in students’ own time and face-to-face group classes. Moreover, some question remains for higher educations are why and for whom should MOOCs be developed. One of MOOC examples given by Pomerol et al. (2015) is a startup name Udemy, which launched MOOC interfaces for business. In other words, it indicates the business
potential and certain fertile market for MOOCs. As for universities, the aim of building MOOCs is not only cater for the demanding of collecting diffusion knowledge at one’s own learning pace and location, but also attract students to enter into university eventually.

It is the role of higher education courses and the teachers distributing them to assist in the construction of the personality of young adult, helping them to find their motivation and vocation after finishing higher education. A MOOC alone cannot fulfill that role (Pomerol, Epelboin & Thoury, 2015). When referring to the targeted student type of audience, the vocational MOOCs are much more appealing to them as they might seek to enhance their skills or change professions or look for a job.

### 12.3 Web 2.0

Web 2.0 is a basic technological knowledge that provide supports to any computer-based activities. It makes the interaction between student and teacher more frequent and close than ever before. The wave of Web 2.0 brings challenges to higher educational systems such as the LMS, the role of teacher and the interaction between student and teacher. Under such circumstances, it is also inevitable that ‘education revolution’ is going to take place. However, according to Bower, Hedberg & Kuswara (2010), there is very little work that investigates how educators might make sense of the wide range of Web 2.0 tools available in the context of learning design, thus it brings the gap between educators and technology of appropriately selecting and using Web 2.0 tools in order to match the learning requirements of their curriculum. Moreover, Web 2.0-based tools are invented and developed to cater to the increasing needs of education, there is still a scarcity of frameworks for thinking about how to design learning experiences using web 2.0 technologies. And “learning design” refers to the description of the “learners and a space where they act with tools and devices to collect and interpret information through a process of interaction with others” (cited in Bower, Hedberg & Kuswara, 2010, p.4)

Therefore, figuring out the sorts of knowledge and skills that teachers require in order to successfully implement technology-based learning design, educators might want to pay attention to determine which are the levels of knowledge associated with certain type of Web 2.0 technologies, i.e. shared document creation, wiki and blogs. For using it as a foundation, it can expand the understanding on what is Web 2.0 and how to effectively integrate Web 2.0 technologies with current learning management system.

### 12.4 Policy

The factor of policy was not elaborated in our paper with regard to the research question due to different opinions from the authors. For example, one authors argues that taking policy into account would make the research more complicated to conduct. The other one would argue that policy is an inevitable factor that would make the changes happen in higher education. However, it is assumable that the different opinions are derived from
authors’ dynamic cultural background. In addition, with reference to the empirical works we have conducted, educators also hold various attitudes toward policy making. Some educators state that it is not the time yet to claim any policy regarding the changes happening at the moment; whilst other educators believe that policy is of importance that higher education should consider along with the changes.

Nevertheless, it indicates a direction where the future study can be continued. And from the results it also gives implications to different types of educators who have same interests in the studied problem.

### 12.5 Strength and Weakness

In overall, there are two shortcomings of this paper. Firstly, there is no discussion from student’s perspectives, such as survey, interviews, etc. secondly, the paper is mostly theory, and the concept we discussed has not been used in JIBS yet. However, this concept has been used and tested in other similar academic environments and have shown positive results. Thereby, JIBS can research and design a suitable flipped classroom for its’ Scandinavian culture.

Moreover, we are also aware of the methodological questions regarding our thesis, as it is a case study of our business school. We choose to collect qualitative data through interviews, even if we regard this as somewhat less than objective and rigorous for further interpretations and analysis on studied problems.

As far as identifying our weakness and methodological issues, the strengths in our thesis follow, for instance, our research question is modern and up to date, it provides realistic implications in the light of education revolution. This helps business schools that want to adapt to the wave of education evolution, by offering a perspective regarding the improvements that can be made to a LMS to adapt to a modern status quo, as well as a theoretical background towards flipped classroom as a solution to improve interactivity and students’ experience in the long-run.

### 12.6 Suggestion for future study

In view of all the prevailing issues, we consider that there is much need for greater study into the problems that the authors have analysed. The authors consider that further research should be conducted to better define and determine the impact of technology on educational systems that is to research on the impact of Web 2.0 technologies on learning management system.

In the discussion, we identified four phenomena, which are the role of teacher, MOOCs, Web 2.0 and policy. All of these have the potential to be better discovered because we have not investigated them thoroughly in this paper. Thereby, we recommend that researcher should look into any of these factors to further clarify the main points of
contention. Finally, as we tackle only the points of view of teachers regarding Ping Pong, we consider that it is important to conduct a study on student’s perspective regarding Ping Pong, thus, identify what students and teachers together regard as high quality learning and teaching using the LMS.

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### Appendixes

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<td>Million</td>
</tr>
<tr>
<td>Retirement Age Women</td>
<td>65.00</td>
<td>65.00</td>
<td>65.00</td>
<td>65.00</td>
<td></td>
</tr>
<tr>
<td>Retirement Age Men</td>
<td>65.00</td>
<td>65.00</td>
<td>65.00</td>
<td>65.00</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 1 Retrieved from [http://ieconomics.com/sweden-youth-unemployment-rate-forecast](http://ieconomics.com/sweden-youth-unemployment-rate-forecast)*

Figure 2. Flipped classroom activities

Figure 3. TAM
Figure 4. The combined model

<table>
<thead>
<tr>
<th>Table 32.1. Models of E-learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived usefulness</td>
</tr>
<tr>
<td>Facilitated course</td>
</tr>
<tr>
<td>Part of a blended learning activity</td>
</tr>
<tr>
<td>Perceived ease of use</td>
</tr>
<tr>
<td>Technology Acceptance Model</td>
</tr>
<tr>
<td>Behavioral intention to use the VLE</td>
</tr>
<tr>
<td>Actual use of the VLE</td>
</tr>
<tr>
<td>Learning by means of the VLE</td>
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</tbody>
</table>

TABLE 1. MODELS OF E-LEARNING.

<table>
<thead>
<tr>
<th>Facilitated Course</th>
<th>Independent Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part of a blended learning activity</td>
<td>A</td>
</tr>
<tr>
<td>Largely Web based</td>
<td>C</td>
</tr>
</tbody>
</table>

Interview Guide (Interviewees are alphabetized)

Name: Andrea Resmini
Position: Senior Lecturer
Informatics, Jönköping International Business School
Date of interview: November 5th
Questions:
1. 【08:05】 How do you think the implementation of MOOC is something that going to replace Pingpong or is complement to Pingpong?
2. 【20: 57】 What do you think that breaks these things?
3. 【28: 28】 How do you see these changes going to happen?

Name: Anna Blombäck
Position: Assistant Professor Business Administration
CeFEO-Centre for Family Enterprise and Ownership, Jönköping International Business School
Associate Dean for Education
Leadership Team, Jönköping International Business School
Date of Interview: November 13th
Questions:
1. 【00:03】How is JIBS keep up to date with the advancement in education that technology brought forward? For instance, the future MOOC and Pingpong.
2. 【06: 38】Do you think Web2.0 technologies are going to affect the functionality of Pingpong?
3. 【08: 50】How do you see the brand image of JIBS now? And the future image when technology is changing the rules of education?
4. 【12: 52】Can you explain what is your goal of ‘practical education’
5. 【15: 11】From your perspective, how do you see the changes from top down to meet the bottom of teachers perspective?
6. 【18: 33】Do you think policy would be a good idea for changes?
7. 【20: 20】Do you think government support or fundraising is important factor to school implementing technologies or make changes?

Name: Christina Keller
Position: Associate Professor Informatics Programme Director Informatics, Jönköping International Business School
Date of Interview: November 10th
Questions:
1. 【01:06】What is the present VLE in JIBS?
2. 【01: 15】What does it like? What needs to be improved?
3. 【03: 56】How are they recognized? What are their names? (Pingpong user group)
4. 【04: 30】Why would it be important for JIBS to implementing the VLE from a teacher perspective?
5. 【06:04】For the discussion forums are interests. Because in Jibs, we noticed that most people use web2.0 extensions to make groups, instead using the function of Pingpong, something that is more used by health school because they have case study, so they prefer Pingpong. There is no much activities in business forum. What do you think of that?
6. 【08: 38】Is there possibilities for university to consider leaving Pingpong and take blackboard or other VLE?
7. 【09: 19】How does change happen? What is one of the main ingredients?
8. 【10: 52】Do you have more to say how do you regard perceived usefulness and ease use of Pingpong from a teacher’s perspective?
9. 【11: 46】If we go a bit outside of the box of the TAM model, what would positively impact the use of technology in class by teacher?
10. 【13: 49】What is your opinion about Personalized learning environments that use Web 2.0. How do you think these affect the development of a University’s VLE?
11. 【16: 30】what JIBS can improve with the VLE?
12. 【19: 29】It relates to cost and benefit when JIBS tries to investment this online learning stuff. Would it be benefit the school to do so? Is it the way of marketing them? How they gain profit?
13. To reach the person on the other part of world, how do you mean by marketing them?
14. How can we change the attitude of people to use more like flipped classroom?
15. Do you think the new generations of students are becoming the main drives or pressures for university to change?
16. Why would it be important to invest more in this things as a marketing?

Name: Carol-Ann Soames
Position: Lecturer
Administration, Jönköping International Business School
Date of Interview: October 29th
Questions:
1. How likely are you using Web2.0 technologies in your class?
2. Would you encourage students to create a friendly PLE in class?
3. What is your overall perspective of JIBS education for learning both inside and outside classroom?
4. What is the type of learning the jibs focusing the most, formal or informal learning?
5. Come back to formal learning, how do you think it helps students learning, to some extend, to have a deeper approach or more in surface?
6. What is your perspective about the shifting of teachers’ role?
7. Flipped classroom
8. Would it be better for students to have a prior knowledge or experience before they apply for university?
9. Investigate about blended learning. What is your perspective about blending learning?
10. How easy is for you to do both blended learning with e-learning?
11. What is your experience with blending learning?
12. Are there any risks of blended learning?
13. Do you think that PingPong is user-friendly?
14. Do you consider adapting this other capabilities to PingPong?
15. Would you prefer to have one tool that those anything or use multiple tools?
16. What improvements would you add to the LMS in Jonkoping University?
17. Would you add any improvements to the Interaction on chat forums in Ping Pong for jibs? There is not much activity.
18. Are you comfortable with the present training support that is offered to educators to use PingPong. Would you improve anything? Change anything?
19. What kind of factors would influence the top command?

Name: Linda Jigegard
Position: IT service, University Services
Date of Interview: November 12th
Questions:
1. 【02:00】 What do you think of these deficiencies of PINGPONG?
2. 【05:30】 Is it part of policy or is it just teacher wants to use?
3. 【09:09】 How do you find the user participates of teachers?
4. 【16:04】 Are you familiar with the development of the MOOC? If that happens, how do you feel the Pingpong going to integrate with MOOC? Will the functionality of Pingpong still look the same?
5. 【17:53】 If I can go back to where you were teaching teachers how to use Pingpong, do teachers find it is easy to use? What is hard for them to use?
6. 【24:34】 After teachers take Pingpong course, what are their intentions to use the stuff they learned in the course? How do you find it?
7. 【28:44】 Some people says that this personalized learning tools, maybe in the future they will become more institutionalized, do you see something like this happening?
8. 【33:09】 What do you see three things in education being worked upon more at JIBS? Like flipped classroom is one of them.
9. 【39:45】 Is there any preparation offers for e-learning course.
10. 【41:15】 What factors do you think caused the differences of development level in terms of learning environment between elementary school and university?
11. 【43:38】 Do you think students has anything to do with it?
12. 【50:30】 How about Pingpong? What is the life expectancy in future? What has been worked upon practically?