Students as e-Citizens - Deriving Future Needs of e-Services for Students

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Abstract
E-Services are rapidly becoming a known subject to many citizens and today more companies and institutions are gearing for the development of new and the conversion of old services into e-Services. These services have a wide range and answers to many differing needs. This paper reports upon a combined qualitative and quantitative investigation performed by a pioneering Swedish research project, the e-Me project. An important part of the project is to involve students in the co-design of their total learning environment. The results show a number of important possible improvements to make the learning situation better in a student perspective.

Keywords: e-services, co-design, e-Me, student

1 Introduction

Today there is a drive to develop more services as e-Services. There are a lot of initiatives for launching new public e-services over the web to citizens – both on national and on European level (CapGemini, 2005). The 24/7-vision has become an important driving factor for this development. The development of public e-services over the web has both been picked up by companies and central authorities. For example, VINNOVA (The Swedish Governmental Agency for Innovation Systems) has issued a research program to facilitate the introduction of e-Services into public administration[1].

Such e-services can be characterised as being of different complexity. It is also the case that the development of some e-services has been driven from different points of departure. Some e-services are merely information providing services while others promote the user of the e-service to perform actions (Albinsson et al, 2006c). The development of most e-services is driven, as the point of departure, from an organisation-centric point of view, setting the boundaries and conditions from the perspective of the organisation rather than the user/customer (Nilsson, 2005). While still attending to the needs and situation of the user they are not often invited to the discussion of where, when and in which context the services should be provided. Pioneering work by Forsgren (1991), Albinsson & Forsgren (1996) advocates however the need for more active customer involvement in design activities in order to develop customer-centric solutions. Other scholars, such as Denning & Dunham (2001), acknowledge the need for creating value for customers by customer-centric approaches for IT-based design. Other scholars, such as and Kramer et al (2000), acknowledges the need for putting forward the value for the end-user. These needs are reactions towards the more organisation-centric point of view during design. It should however be noted that a user-centered design should be mistaken for a customer-centered design. Many times the user is not the same as the customer.

One group of citizens affected by such e-services are students. In a research project, called the e-Me project[2], e-services are investigated from a student centric perspective. From this point of view the students want to design their learning environment with services from different universities and other organisations. CSN is (Swedish National Agency of Student Aid) one example of an authority that almost all students have to deal with. On the other hand from an

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organisation centric view each university and organisation want to "catch" the students as their "customers". On the CSN website they state that: "We strive to become a 24/7 agency. One way to do this is our website and the services we offer here.[3]"

However the students themselves are not sitting idle in the middle of all this development. In the midst of all the action of authorities and institutions developing and using new e-services the students are creating e-Services of their own. One such enterprise is the website Student.se, whose founders recognized the growing development of websites and e-Services for students and decided to create a community where students could access those e-Services[4].

E-services for students are rapidly becoming more commonplace, but there exists a problem with the way that these e-Services are being developed. They are today made from the perspective of the organization and as such the accessibility for the student is hampered. A student has to remember several different sets of login requirements just to go about the daily life. The problem that is created by this organizational way of thinking is illustrated through the fact that students sometimes forego the e-service and uses a manual variant instead. It takes up a lot of time just to move between the different locations of the e-services and the multitude of logins creates a barrier which the student has to overcome in order to access the e-service they want.

Reports upon research about development and utilisation of e-services for students are rare. There are however student-related initiatives, but these are on a more technical level. E.g. Padmanabhan (2003) introduces the SNET-model that pinpoints technical challenges for providing efficient and effective services for students. This initiative is although driven from an organisation-centric point of view. It does not take into consideration what desires and demands that the student has in order to make the life easier. Another initiative is brought forward by Pape et al (2003) who brings up the role of a community system – the virtual homeplace for students – not letting the university being a member of this community. This initiative is to be seen as one potentially desired e-service by students of today. In the research reported upon in this paper we do however take students' life situation as starting point and then derive desired e-services from that point of view. Our report on this extreme approach of putting the client's life situation, in this case the student, as our starting point does seem to be quite unique.

The e-Me project referred to above has taken the point of departure of studying different daily situations for a student in which e-services could be of use to make it easy as a student. The authors of this paper are involved in this project. In the beginning of the project approximately 30 students from different schools in Sweden, aided by people from the project, co-designed (Albinsson, 2006) different scenarios where the uses of e-services designed to support students' life were in focus. The scenarios showed these desired e-services in context. Two workshops have also been run in Barcelona to add a European perspective to the scenarios. After these co-design workshops the scenarios and situations have been validated at a wider group of students. The purpose of the paper is to share the results from such a combined qualitative and quantitative study of deriving desired e-services for students. The research is driven from the question of *how to develop student centric e-services to meet future demands to ensure high quality student life*. The emphasis in this paper is on the quantitative study since the result from the qualitative study has been reported upon

3 http://www.csn.se/english/default.asp

4 http://www.student.se/hem/omoss.php

in Albinsson et al (2006ab). The results from the qualitative study will however be summarised in this paper since it represents important pre-requisites for the quantitative study.

This paper is structured as follows. In section two the research methodology adopted in the e-Me project is introduced. This section include both a smaller introduction to the e-Me project as well as some consideration concerning the combined qualitative and quantitative research approach. Following the research approach results from the qualitative work is presented in section three. These results represent the basis for conducting the quantitative survey, which is reported upon in section four. Following the presentation of the results from the quantitative study these results is reflected upon.

2   Research Methodology

2.1   The e-Me project

The e-Me project is a governmentally funded Swedish research consortium consisting of representatives from Umeå University, the University college of Borås, the city of Stockholm as well as several partner companies like Intel, Microsoft, VISA, Telia and smaller student oriented companies. The goal of the project is generate IT-solutions in a student centric way. The project is in its second year of existence and has been thoroughly investigating the everyday life of a student as well as the interactions between students, authorities, companies and institutions.

One of the results of the project so far, as presented during the e-Me Symposium on the 29th of May 2006 (c.f. Albinsson et al, 2006a), is that most of the services and information that is communicated to the student via different media is presented in an organization centric manner. The student has to reach out to access the services or information either physically by going places or via the Internet by having to visit one website per task they wish to perform.

2.2   The co-design approach

A core idea in the co-design approach is that there is a close relation between innovative product/service development and knowledge creation. Business and organizations constantly try to capture knowledge about ideal situations for customers or clients which they match with knowledge about resources they have or can create. Successful business/organizations are able to constantly develop their knowledge about customer ideals and their own matching resources. Customers or clients on the other hand constantly try to imagine and find out knowledge about their own ideal situations and look for affordable resources which can make it possible for them to come closer to ideal situations. In this view researchers assist business and organizations as well as customers in discovering the lacking knowledge. The dynamic interplay between these actors and processes constitutes the co-design knowledge creation process (Grönlund & Forsgren, et al., 2000).

In the e-Me project the focus is on customers and clients in this case the students and their ambitions to find out knowledge about their own ideal situations so they can try to find and select matching resources.

As one part of the project we as researcher did assist the students in this ambition. We did that with two complementy techniques. 1 Workshop activities with different stakeholder and inspiration groups where the results were a number of scenarios describing the ideal life with an ideal e-Me. Students were of course such an important such stakeholder group. 2 A quantitative survey to 16000 students in Sweden.

Qualitative workshops came first during the spring and fall of 2005 and the Quantitative survey came next performed in collaboration with one of the biggest Swedish actors in student oriented e-services, Mecenat, during the spring of 2006. The result of the qualitative workshops served as basis for the quantitative survey.

The criteria used in selecting the students for both workshops and the quantitative survey were:
  - They should be from both city and small town environments
  - Of varying age approximately between 20 to 35 years old
  - 50 % males and 50 % females

2.3   Co-Design workshops

The project has run nine student workshops and performed interviews with both students and high school pupils planning to go to university. Interviews have also been performed with alumni as well as with young people who are just out of upper secondary education. The very first workshop was part of the feasibility study performed in the spring of 2005. Then two sets of three workshops were run in Sweden, in Stockholm and Borås to develop scenarios. The reason for using two locations was to get insight about student life in both urban and small town environments. Then two workshops were run in Barcelona to widen the perspective to include a different nationality. While some aspects of a students' life is generic there are others which are not. An example is the bureaucratic system used at universities which in Sweden is can be quite complicated to handle but was a nonexistent problem in Barcelona.

The workshops performed in Stockholm and Borås used the same kind of setup at both locations. Results from those workshops were then used in the workshops that followed in Barcelona and compared with the situation there. The content of the workshops were structured as follows:
  - **Workshop 1**, In the first workshop the students discussed their own situation in respect to their school, authorities, companies, shopping, living, friends, private life, email, mobile phones etc, in groups. The groups then presented to each other their findings and conclusions were drawn, identifying the problematic issues. The purpose of the first workshop was to ensure that the project is "barking up the right tree", i.e. that the e-Me will address important issues.
  - **Workshop 2**, In the second workshop the students were asked to discuss in groups how their last week should have been ideally, given the experience of the first workshop and the concept of a versatile, omnipresent electronic acting on their behalf. They were asked to present their conclusions as Co-Design Scenarios preferably as cartoons, using flip charts.
  - **Workshop 3**, In the third workshop the students were given the written scenarios based on the previous workshop and asked to review and further develop these scenarios. Some scenarios was also made into cartoons and presented.

The results from the workshops were documented in texts and cartoons (c.f. Albinsson et al, 2006ab).

Results from these workshops were then used together with materials from other sources both domestic and international, mainly European and from the US (c.f. e.g. the US survey documented in Kvavik & Caruso (2005)), to create eight different scenarios. Among key findings brought from these sources was that many students are already accustomed to electronic resources. A definition thereof is the Net Generation (Oblinger & Oblinger, 2005)

where students are described as: Digitally literate, always connected, desiring immediate response, experiential, social, visual as well as craving interactivity. Kvavik and Caruso (ibid.) then expands upon this in their survey where it can be found that above 60 % of all the students (18 039 participating) in the survey owns a PC and more than 50 % a laptop. The amount of students owning a cell phone was above 90 %.

2.4   Quantitative survey

Restrictions had to be made regarding the students for the Quantitative survey. These restrictions were the results of assumptions loosely based on Everett M. Rogers five categories of adaptation (Rogers, 1983). He defines a person's susceptibility for innovations as:" the degree to which an individual is relatively earlier in adopting new ideas than the other members of his social system." (Kotler, 2003, pp. 376) He splits people into the five categories as follows:

- **Innovators**, (2.5 %) The first ones to pick up a new idea, always willing to try something new.
- **Early adopters**, (13.5 %) Respects new technology and adopts it early but in a more careful way than the innovator.
- **Early Majority**, (34 %) Are open to new technology and use it before most other people.
- **Late Majority**, (34 %) More sceptical than the average person and does not adapt to the new technology until a majority already uses it.
- **Laggards**, (16 %) Bound by tradition and conservative. Does not pick up the new technology until it becomes "old".

Since the survey would be performed as a voluntary internet survey the first assumption was made that most people who answered the survey would fall into the top three categories. Only people who were interested in technology from the beginning would be attracted enough to voluntarily answer the survey. Thus the answers from the survey would in all probability be most relevant for that portion of the student population.

Because of the wealth of questions and material the survey was split in eight parts and in turn each part of the survey was split in two over scenarios and services. The survey pinpointed three main questions:

1) Is this a problematic *situation*?
   This question has two important aspects, first as a verification that the situation described to the students is indeed problematic and second as a way of ranking the importance of having this situation corrected.
2) Is the *scenario* a solution to the problematic situation?
   The scenarios are meant to be used as a design tool for constructing future e-services and as such there exists a need to have the solution examined and ranked by students who were not involved in its creation.
3) How important are the e-*services* identified in the scenario?
   Each scenario was based on a set of needs explicitly expressed by the students during the workshops. Apart from being used as a base for the scenarios these needs were also used to create a set of fictive e-services. The importance sought after is going to be used as a base for prioritising these e-services in the event that they are realized in an administrative platform for students.

The verification of the qualitative results was based on a ranking of the situations and scenarios to see the relevancy of this material. To facilitate this a five grade Likert scale

(Likert, 1932) was used. The choice of the Likert scale for grading the relevancy was based on its familiarity since it is the most commonly used in surveys today. It also has the benefit of similarity to the old Swedish grading system used in schools which also helps to ensure that the students do not inadvertently misunderstand the grading system. The scores given ranged from 1 to 5 where a 1 symbolized a low grade or complete disagreement and the 5 a high grade or complete agreement with the statement.

The given scores were then used to compute an average grade for the situations, scenarios and each of the separate e-services. The average (avg) was calculated by adding the scores (scr) given by the students and then dividing the sum by the number of students involved (n) as per the equation below.
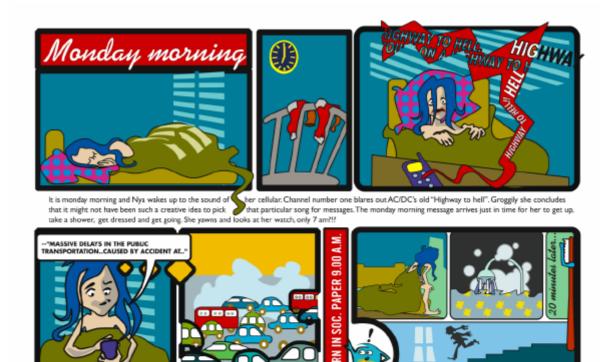
$$avg = \frac{\sum scr}{n}$$

The average grades were then used to compile lists in order to compare the situations and scenarios as well as the e-services. An average was also calculated for all the e-services inherent in a situation/scenario to be able to compare the grades between situation, scenario and e-services.
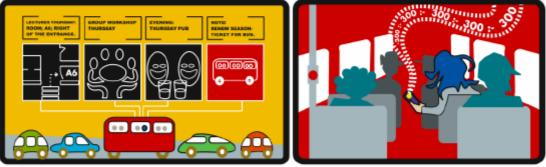
3 Scenarios for the future use of e-services by students

The results from the qualitative workshops were eight different scenarios covering situations for the students' future use of e-services. These were documented both as text and cartoons. Since the quantitative study uses the cartoons as a part of the survey we will in this section introduce the different scenario themes covered in the eight scenarios. In figure 1 below we have included one of the cartoons covering one scenario (c.f. Albinsson et al, 2006a for a documentation of all scenarios as cartoons).

In the following sub sections of this section we have summarised the different scenarios generated from the qualitative workshops. A more exhaustive description of the scenarios could be found in Albinsson et al (2006a).

Figure 1: Cartoon presenting one of the scenarios: Monday morning (from Albinsson et al, 2006a)

3.1 Scenario 1 – Apply to university and the beginning of the studies

This scenario deals with the questions aspiring students might have regarding the beginning of their studies. The scenario also showcases the larger question of what will life look like in the future given the choice of education. What will a potential career look like, income and what lifestyles will be possible?

3.2 Scenario 2 – Monday morning

What does a regular day in a student's life look like? In this scenario a multitude of features central to the e-Me are put into the context of everyday life. It also illustrates the quality of the e-Me which the students partaking in the workshops labelled the e-Mum. A host of features that takes "care" of the student, sometimes nagging at them to do things.

3.3 Scenario 3 – You've got lots of mail

Here is a common problem, spam and all the mails received by a student, and a way to handle the solution that most students use today. Most students have at least three mail accounts. One for private mail, one for school and work and one that they use to sacrifice when they think they might be spammed by the receiver. The e-Me take care of all this and while the student still keeps all the accounts the communication is handled from only one spot.

3.4 Scenario 4 – Change of plans

Everyone has had a change of heart at some point in our lives and this scenario illustrates how the e-Me can manage these changes of plans. By using the latest techniques in mobile communication the changes are also shared with people who are affected by them.

3.5 Scenario 5 – Form filling and reviewing

Form filling is something that is perceived by most people as boring and although important as a chore that needs to be done. This scenario illustrates how the e-Me takes care of this for the student as well as helping out with things like the income tax return forms. In regards to the income tax return form it showcases how electronic assistants could help the student by checking for possible deductions.

3.6 Scenario 6 – The elective course

Here is another common situation from the everyday life of the student. What happens when it is time to choose a new subject? Here the theme is how a student can interact through the e-Me with other students and mentors when picking a new subject for the curriculum.

3.7 Scenario 7 – Finding Jobs

To make ends meet most Swedish students are dependent on some sort of extra job that they perform during their spare time. One thing which is important when applying for a job is the résumé. In this scenario an example is shown of how the process of finding and applying for a job can be automated as well as the work with the résumé. The e-Me even takes into consideration what interests the persona has as well as what would be useful for her in the future.

3.8 Scenario 8 – Purchase

It is common knowledge that students are poor. In this scenario a possible future is shown where students are subject to direct marketing, only what they are interested in gets transmitted to them. In this way they can easily find and use offers that are really relevant to them.

4   Quantitative investigation

The purpose of the quantitative survey was first and foremost to verify the decisions and assumptions made during the work with the scenarios. Therefore the decision to include the scenarios and situations in the survey was natural. A second reason why the inclusion of the scenarios came so naturally was the format. The scenarios were presented in a cartoon format making it very friendly for someone who is new to the e-Service subject. The scenarios also contextualise the use of e-services in a student life situation. The third most important reason for the survey was to prioritize the services to be included in a future student centric IT-based platform.

16 000 students from the membership pool of Mecenat[5], an e-retailing company that focuses primarily on students, participated in the quantitative investigation. The membership pool of Mecenat covers above 85 % of all the students in Sweden. The objective when picking the students for the survey was to get a population that would be as representative of an average student as possible as well as being evenly split over genders. Rather than defining attributes seen as average among students the method used was to randomly select students from the pool of members at Mecenat. The rationale behind this was that since the membership pool covers such a large portion of the student population a randomized selection should generate a pretty accurate picture of the average student.

The quantitative study was arranged in segments based on the scenarios involved. This meant that one student did not get to look into more than one scenario. One segment corresponds to one scenario (c.f. section 3). The reason for this choice of approach was the limited space. All the questions and cartoons included in the entire quantitative investigation would have made up a truly massive survey (The scenarios would have been 10 pages alone). The participation in the survey is presented in the table below.

Table 1: Participation in the quantitative survey (in percent of students in each segments)

Segment	# of students included	# of answers	Percentage of answers
1: Apply to university	2000	377	19 %
2: Monday Morning (a student's life)	2000	440	22 %
3: You've got lots of mail	2000	463	23 %
4: Change of plans	2000	430	22 %
5: Form filling and reviewing	2000	336	17 %
6: The elective course	2000	370	19 %
7: Finding jobs	2000	447	22 %
8: Purchase	2000	358	18 %
SUM	16000	3221	20 %

4.1   Results from the Quantitative investigation

In the first part of the survey the students were presented with the one situation and the hereto relevant scenario. To begin with, the student was presented with the situation in written form and then asked to rank the situations with a grade ranging from 1 to 5 where a 1 represented "This situation is irrelevant!" and a 5 meant that "This situation is highly relevant!". The reason for placing the situation first was to prepare the student for the solution which came in the form of a scenario, presented as a cartoon.

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5 Mecenat is a partner in the e-Me project

The investigation resulted both in quantitative measures concerning the asked students' opinion about the scenarios and situations as well as qualitative results coming from the opportunity given to the students to make comments. In the following part of this section the results from the quantitative survey is reported upon.

First we introduce the average ranking of the situations and scenarios (see table 2 below). These are the results from the assessments the students made of the situations and scenarios in the survey. The averages are calculated on the students' grades only.

Table 2: Average ranking of the Situations and Scenarios

AVG rank on Situations		AVG rank on Scenarios	
Change of plans	3,68	Change of plans	3,78
Looking for work	3,59	Looking for work	3,53
Purchases	3,52	The elective course	3,31
Apply to university	3,42	Apply to university	3,13
The elective course	3,24	Purchases	3,07
Monday Morning (a student's life)	3,04	Form filler	3,05
Form filler	3,00	Mail	2,99
Mail	2,86	Monday Morning (a student's life)	2,97

A few things can be said about the contents of this table. First we can see that the results are grouped together. The two top ranked situations and scenarios are roughly on par with each other. As are the bottom three. The scenario/situation "Purchases" has been split in the middle since it is ranked highly with Situations and with the lower group in Scenarios.

Linked to the situations and scenarios were also between four to twelve services. These services were based on the discussions during the second workshop in Stockholm and Borås. Since the services were suggested by the students (by those who participated in the workshops) themselves they can be seen as the explicit needs and wants whereas the scenarios try to capture the implicit aspects. The averages listed in the table below were based on the scores given to the inherent services under each segment.

As with the Situations and Scenarios the students were able to grade the service. Just like the previous ranking the grades were 1 to 5, 1 meaning "no, we don't like it!" and 5 meaning "YES, please!"

Table 3: Average ranking of the e-services included in the scenarios

AVG rank on services	
Monday Morning (a student's life)	3,97
Looking for work	3,95
Apply to university	3,79
Purchases	3,76
Form filler	3,72
The elective course	3,71
Change of plans	3,63
Mail	3,28

The order of the Scenarios based on the average grade given to the inherent services is markedly coherent with the above ranked Scenarios and Situations. A notable difference is the

Monday Morning scenario where the students apparently liked the services a whole lot more than the scenario itself.

Since all services, inherent in the scenarios, also have been evaluated in the quantitative survey a list of top twenty services has been possible to extract (see table 4 below). These top twenty services were selected from across all situations and scenarios.

Table 4: The top twenty e-services extracted from the investigation

1	When a course starts there should be possibilities to buy the right literature through the e-Me. To get the lowest possible price this should be combined with a pricerunner variant where the student can see the three cheapest alternatives.	4,53
2	At the start of each semester a page should be prepared with all the contact information needed for the course taken. Included information should be lecturers, course administrators, group teachers and all participating students.	4,43
3	A page where the student can find all relevant information on the courses he or she is attending at present. This information should include abstract of the course, points of interest, lecturers, group teachers, litterature list and curriculum.	4,4
4	Used book sales through the e-Me.	4,31
5	Instead of buying entire books when a course calls for only a few chapters to be read from each book the student should be able to buy a compendium where only the relevant chapters and articles were present.	4,29
6	Important course material on the Internet including: lectures on film, notes from the lectures, exercises or similar.	4,24
7	To get notifications from the e-Me on changes in the schedule, important course activities, invitations or similar.	4,23
8	Reviews of the students Curriculum Vitae by competent personnel giving advice on both disposition and content.	4,18
9	A function where you could after conducting a final or an exam see the result as a popup window in your e-Me or as a SMS.	4,17
10	Pricerunner variant for comparing prices on products.	4,15
11	A search engine where you could look for work based on a profile on suitable and interesting possibilities. Interesting items should be possible to save in a separate list. It should also provide deadlines and requirements for included trainee positions.	4,15
12	A scheduling service with automatic updates. In the scheduls should be included lecture notes. Possibilities for employers to insert work schedules, It should also be possible to share the schedule with friends and to invite people for meetings.	4,07
13	Function for checking how much money a student can make in a given month in regards to the regulations of CSN. It should also include ceilings for when the monthly allowance is effected and by how much.	4,06
14	Support from the student's own university can get help with trainee spots.	4,05
15	To be able to directly from the e-me print study certificates.	4,04
16	A service designed to supply information about the possibilities of getting a place to live in the city where the education is located.	4,01
17	Possibility to apply for courses at other universities and incorporate them into the curriculum for the student's own education.	4.0
18	Ability to publish the resume in a pool together with other students to market the student both during and after the education.	3,96
19	The possibility of having older students, alumni and people from the industry mentor the student online.	3,94
20	Schedules for incipient students applying for education complete with information about meetings, exhibitions, events and when the universities are welcoming new students to their facilities.	3,94

4.2 Qualitative additions

The students were offered the opportunity to add their thoughts about the concept of an e-Me and what they would like to add (as free text). During the analysis this material was broken down and sieved for interesting information. The analysis was made on two levels:

1. From a general perspective where the occurence of similar aspects put forward in comments. On this level the objective was trying to measure how involved the students were with the concept of an e-Me.
2. The actual suggestions made in the comments. What did the students find missing, what complaints they had and what did they like.

Regarding the assumptions made on the population of the survey in section 2.3 it did not come as a complete surprise that the students showed a keen interest in the subject of the survey. This could be clearly seen in their many suggestions on possible additions that went far beyond the scope of the situation and scenario they were presented with. The students also displayed enthusiasm about the entire concept that in some cases outshone the grades they had given in the survey.

A few contributions from the comments that need to be addressed in order to give a complete picture of the survey are:

- The notable fact that the students did not like the engine used for the survey. There have been comments ranging from the disposition of the different functions to the visibility of the scenarios. Lesson learned is: Next time pick a better engine for surveys.
- A fairly common comment was that parts of the system already existed in some way within the local University or college.
- Some students expressed a fear of everything becoming too digitized. Clearly stating that even though the e-Me sounded good they still wanted human interaction.

5 Reflections over generated results

5.1 General observations

Due to the limitations in time a cut-out was set on each survey to 2 weeks or 20%. The survey was presented using an online engine for surveys and connected to a mailing list. This is usually a recipe for a bad rate of responses. This time however this was not the case. Despite being on the internet and distributed via email the average respondent percentage was a staggering 21% in less than two weeks of uptime! This alone can be seen as a clear indication that the subject of e-Services for students is highly relevant.

Most of the students are between the age of 18 and 28 (70.2 %) and live either in the large city areas (Stockholm, Gothenburg or Malmö (31.3 %)) or in the cities where the larger universities are situated (Uppsala, Linköping, Lund, Växjö, Karlstad, Umeå, Sundsvall/Östersund (36.1 %)).

An interesting note regarding the fact that the subject of e-Services is supposed to be of technological nature is the attendance of female respondents. The average attendance is 64.6 % females, almost two out of three.

5.2 Regarding Situations and Scenarios vs. Services

With one notable exception the resulting tables from the situations and scenarios go hand in hand with the results from the services. The lone exception was the Monday morning Services

package which by a large margin outstripped its counterpart in the linked Situation and Scenario.

On the average rank between scenarios, situations and services however this does not hold true. Even though the lists are similar the rankings are not. Generally the Services hold the upper hand by quite a large margin. Even when taking into consideration that the number of questions per package does not exceed the figures for the law of large numbers[6] to take effect the results are too obvious to be ignored. The reason behind this discrepancy can probably be found in the comments offered by the students. As it were the cartoons used for the surveys were created for the student workshops and were drawn to catch the eye and inspire the students. In the less than 1024X768 format of the engine used for the survey they were not shown to their best effect and the text became hard to read, thus making the scenarios hard to understand. Another thing that added to the confusion was the decision to use English as a language. Many students commented that they did not like it and some even thought it was because of laziness.

5.3   Putting students' desired e-services in a wider context

Within the scope of the project we have also conducted two workshops in Barcelona. During these workshops we verified the scenarios and situations covered in Albinsson et al (2006a). It can here be noted that several scenarios and situations are highly relevant for students in Barcelona. It can however be noted that there are some contextual factors that make some situations less valid than others. One example is that there is no such thing as a student allowance agency in Spain.

The e-services generated here can also be reflected upon in relation to what different frameworks for design and evaluation e-services. These frameworks (c.f. e.g. ANAO, 1999; Statskontoret, 2000; Andersen & Henriksen, 2006; Goldkuhl & Persson, 2006) highly emphasise different levels of complexity of e-services (such as information, interaction, transaction and integration). It can through such reflection be noted that most of the desired e-services are complex and involves both match-making and integration between agencies, between students, as well as between agencies and private companies for the purpose of making the life as a student easier. It can also be noted that the e-services are in line with the concept of web 2.0 (c.f. O'Reilly, 2005).

While the problem with organizational thinking is not restricted to students but is rather experienced by a wider group of citizens, the focus has been on students for a number of reasons:
1. Students are susceptible to new ideas and ways of doing things often spearheading the usage of new services.
2. Students are a well defined group within the society.
3. Students are an increasing section of society. In Sweden roughly 8% (350 000[7]) of the workforce (4.4 million[8]) is studying and these numbers are growing.

This means that the result of this is to be seen as possible to transfer to other groups in the society.

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6 Law of large numbers state that the error when calculating an average becomes less when the number of instances averaged increases. Blom, (1989), sid. 123

7www.ssco.se

8www.scb.se

6 Conclusions

In this paper we have reported upon a co-design research approach to derive students' wants and needs of future e-services for making the life as a student easier. In relation to other studies made upon e-services for students we have taken an extreme approach in which we put the student desired life situation in focus. Some e-services derived needs to be supplied by universities, but others need to be supplied by other service providers. The qualitative workshops, involving students and researchers in the design process, served as a way to derive a hypothesis to be tested in a wider quantitative survey.

From the quantitative survey it can be noted that identified situations (of being a student), scenarios (of using e-service solutions to make the situation easier) and identified e-services are desired by the students in Sweden today. These situations, scenarios and e-services have also been co-designed by and verified with students in Barcelona. With the exception of some contextual factors the identified e-services seem to be highly relevant in another part of Europe also.

The initial result when regarding the situations and scenarios did not quite give the clear cut result hoped for. The need was to have the situations and scenarios verified so that the project could go on with developing the e-Me services and at a glance they were not.

It can be noted that the situations and scenarios get lower grades than some e-services as such. This shows the complexity of making this kind of investigation. Of course it might be complex to derive a number of situations relevant to a big group of students. In some sense one could say that the same life situation does not apply to more than one student. It could therefore be noted that a number of relevant situations (even if there might be some deviation from the actual situation) has been captured through the qualitative approach. It should also be noted that besides the students that directly have been involved in the co-design work of situations and scenarios the results has been presented to 100's of students who all find the results relevant. Another thing that can also be noted is that the scenarios describing the solution to the identified problematic situations seem relevant, but not all students would choose the same solution. The respondent students however see that many of the derived e-services could be used and combined in different ways. This is a strong argument for using a student-centric electronic assistant (e-Me) as distribution channel.

There is however a few aspects that needs to be taken into consideration before making a final ruling. The first of which is the discrepancy in ranking between the situation and scenario package and the service package. 0.5 is a ten percent shift and in this case the difference between merely being acceptable and rated as good. This shift was caused by two things:
1. The choice to keep the scenarios in English.
2. The not quite successful manner the scenarios were presented in (format and media).

The services were otherwise coherent with the results shown in the situations and scenarios package. This added to the discrepancy mentioned above tells a slightly different story. That the place to look, when wanting to check on the performance of the situations and scenarios, is really in the services package. The tale there is that most of the situations and scenarios are well above average. Add to this the comments and a different picture altogether comes forth. Some comments even hint that it's about time some of the situations were improved upon. So our conclusions are that *identified e-services reported upon in this project are wanted by the students*.

As a final methodological comment, the study reported upon in this paper shows the complexity in combining qualitative and quantitative approaches in order to derive interesting results. Qualitative results are often bound to the contextual situation in which the results have been derived. Quantitative results often discard the contextual situation. In such combined approach becomes therefore vital to interpret the quantitative results on qualitative foundations.

One more thing that came out of this survey is how the students prioritized the e-Services presented to them. A roadmap regarding what should be developed has been handed to the project. An added extra benefit is the comments from each of the surveys. They in some parts tell us exactly how the students want their e-Services to be presented for them.

This paper has reported upon a number of different e-services desired by students. Based upon the quantitative results there is now a need for realising some of these services. This is both a question of creating an e-Me as the distribution channel for e-services as well as a task of encouraging content providers to adopt their distribution of e-services through such a channel. In this way the development, choice and use of e-services can become student-centric.

Acknowledgements

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