A Longitudinal Case Study of End-User Satisfaction

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ABSTRACT

In this research, the end-user satisfaction has been studied in a longitudinal research. A survey based on UIS and EUCS models has been carried out in 1996, 1999 and 2003 in a business school. In this paper we reveal the main results of these surveys. Between the three points of time certain actions have taken place in the organization. The most interesting foundations relate to the standardization policy, to the 2-tier help desk and to the user training. All actions had a significant influence on user satisfaction.

CASE DESCRIPTION

In this paper we discuss a study made in Turku School of Economics and Business administration. It is a business school that provides research and higher education in the field of business science. The School contacts both basic and applied research, and offers graduate, postgraduate and continuing education. Expert consulting services form an increasing part of the School's activities. Currently there are approximately 2000 undergraduate students and about 300 doctoral students at the School. The teaching and research staff numbers around 200 and other staff around 100.

We carried out a user satisfaction survey in 1996, 1999 and 2003. Our questionnaire had close to 70 questions, Likert-like scale from 1 to 5, covering the following areas: the success of SISP, the IT/IS policies, the service level of IT centre, the IT/IS in users' disposal, user skills, and the focus of IT deployment. The questions were based on UIS (Bailey - Pearson 1983) and EUCS (Doll - Torkzadeh 1988) models, tailored for our specific purposes. We did not study the satisfaction at specific administrative systems.

The first survey was carried out to analyse the situation in order to plan a new information management strategy. After the survey, as part of the implementation of the new strategy, certain actions took place, the most important ones being the following:

- We standardized our user environment in 1997. Windows NT and Office 97 were chosen to be used by every user.
- We established a 2-tier help desk service in the beginning of 1998.
- We started to train the users systematically in 1997. That has been an ongoing process since then.

Between the second and the third survey a new information management strategy was formulated and implemented, but no dramatic movements were taken. Newer versions of Microsoft products (2000 and XP) were implemented with a good self-command from 2001 to 2004. Figure 1 illustrates the overall development process from 1996 to 2004.

STANDARDIZATION POLICY

The discussion on standardization of end-user computing started already in 1980's. Gerrity and Rockart (1986) introduced the idea of monopolistic versus laissez-faire strategy. Munro and Huff (1988) stated that most organizations evolve from laissez-faire strategy to controlled growth strategy, either through control or acceleration. Henderson and Treacy (1986) explained the evolution using a state model, according to which the growth of a new technology and control of it always follow each others in cycles.

The essential issue in standardization is the power balance between the IT centre and the user organization. Halloran (1993) stresses the clear domains of responsibilities as a key to information systems success. It is fairly easy to bring forward arguments for a strict control strategy. Having such a strategy, the organization may achieve advantages in purchasing, organize user support and training more effectively, and take care of user work stations more cost-efficiently. The users' or departments' power to self plan and control on their IT resources is the counter argument. From a point of view of a department chief it may be hard to understand IT centre's argumentation for one for all policy. Clearly, organizational development and greediness for power are competing. The first one is based on rationality; in the latter case the motivation is merely emotional.

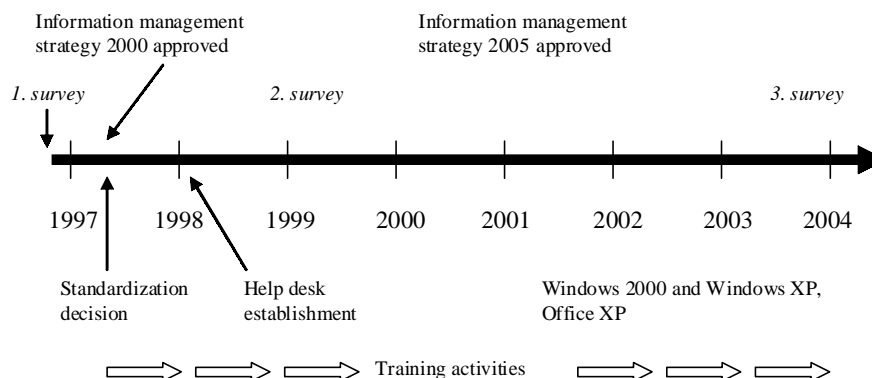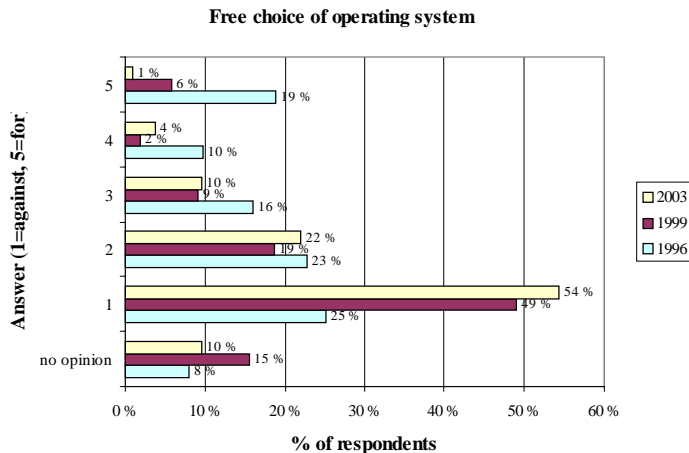*Figure 1. Development Process in Turku School of Economics & Business Administration*

Figure 2. Standardization Policy: Free Choice of Operating System (i.e. Windows versus Macintosh or Linux)

Free choice of operating system

In our study we looked at the standardization from the user satisfaction approach. We have measured the user satisfaction three times during a 7 years period. This has given an exceptional chance to analyse the interdependence between satisfaction and standardization in the long run. Figure 2 shows that there was a clear shift in opinions from 1996 to 1999 and the same trend continued from 1999 to 2003. Averages to the question "Everyone should have the right to choose between Macintosh and Windows" have been 2.71, 1.79 and 1.62 in 1996, 1999 and 2003 respectively.

The reason is obvious: in 1997 we launched a strict control strategy instead of the former policy where the units could buy and use computers and software according to their own will. In the beginning of 1997 Macintosh's consisted about 10% of our computers and we had more than 5 different word processors in use. At that point the new information management strategy was approved by the board of the School. The strategy included standardization and a new purchasing policy. Windows NT and Office 97 were defined as a standard and the IT centre of our school was given the privilege to determine the type of computers the organizational units may choose. The IT centre takes care of the purchasing based on line managers' orders.

The conclusion is that in the long run a homogenous user environment provides the users with more stabile tools and services. According to our studies, reliable functionality is the most important thing the users expect. The users were asked what should be the focus of IT deployment. Each time the stability of workstations, network and office tools have been rated the most important of 39 options (averages 4.55–4.84). To contrast, the averages to the question "Processing power of my work station" have been 3.84–3.98.

There exists the "war against Microsoft", and many are enthusiastic supporters of Macintosh or Linux and open source software. Although some individuals still might like to choose his or her tools individually, the general opinion in our organization is already strongly for the standardization – which in our case means Microsoft. It may not be the only option, but the most essential here is that the organization has only one option in use.

The equipments at a user's disposal may have some status value and some users may even have an emotional relation to the tools, but the satisfaction of most users depends, however, on his or her ability to manage his or her tasks. The IT professionals can provide the users with better functionality when given the sufficient authority.

HELP DESK

In IS literature users have traditionally been divided into two groups: end-users and IT professionals. This line of thinking is based back on MacLean (1979), who used the terms data processing professionals and data processing users. Rockart and Flannery (1983) found six categories on a continuum: non-programmers, command-level users, end-user programmers, functional support personnel, end-user support personnel, and data processing programmers. The basic distinction between end-users and IT professionals is their relation to IT. Professionals create application to others; end-users use the applications (Cotterman - Kumar 1989).

Classification into two groups is sensible, because in real life organizational settings the end-user group creates a demand of services to be supplied by the IT centre (Leonard 2000). Although this kind of demand/supply approach has been criticized and the alignment approach has been emphasized (Henderson - Venkataraman 1992, Duchesi - Chengalur-Smith 1998, Zee - Jang 1999), the two groups and the interaction between them remain.

The relation between IT centre and end-users is often disturbed because of the power unbalance caused by the nature of the relationship. The supply side can perform its tasks adequately at its best. In many cases, the system failures or users' low participation in IT projects cause dissatisfaction with the IT centre (Kettinger - Lee 2002). Smith and McKeen (1992) interviewed line and IS managers, and some of the comments illustrate very well the negative attitudes of both sides: "IS people are techies and don't understand business... don't have interpersonal skills... "; and "The users don't know what they want... We try to make the users happy but don't give them whatever they want...". Clearly, the stereo types of these two groups are somewhat different to each other. Couger and Zawacki noted already in 1980 that IT professionals want to have more challenges and less human contacts than other people – that probably still is the case.

Trust and respect to each others is the key to healthy communication (Leonard 2000). In practice, most organizations try to deal with the well-known communication problem by seeking persons with better social skills to the customer service functions of the IT centre. Very often the service has been organized in 2-tier (or even 3-tier) manner: the users communicate with a front-end service and the techies are at the back-end unit. In our School this was arranged in the beginning of 1998. The results can be clearly seen in Figure 3. During the time in question the team of professionals (the back-end team) has not been changed, so the shift in opinions can be explained only by the new arrangement.

We established a help desk team, which consists of a group of students. Usually, a student joins the team in his/her second or third academic year and stays in the team for two to four terms. The personnel of our School have been very satisfied with the arrangement. The team takes care of the communication to the users, both students and personnel. Their technical expertise is not as high as professionals, but their interpersonal skills are better and they are better motivated to solve also
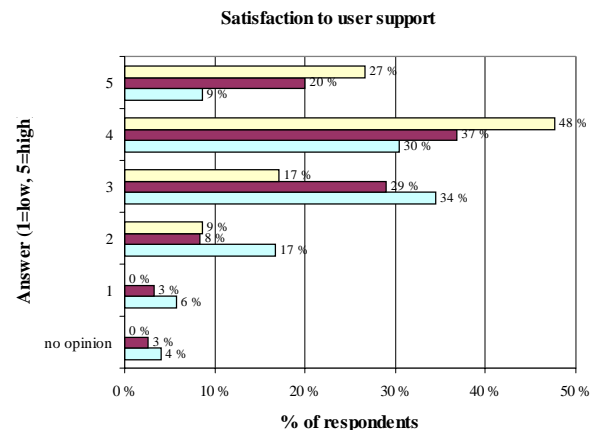
Figure 3. Satisfaction to the User Support

Satisfaction to user support

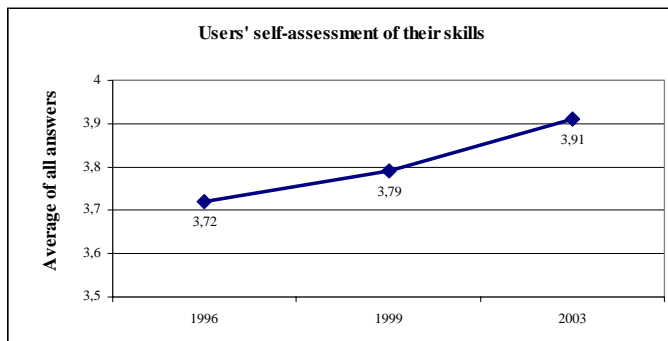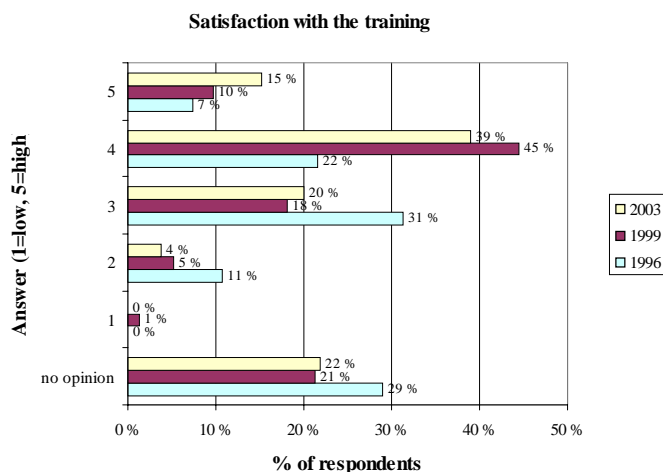*Figure 4. Users' Self Assessment of Their Skills (average of 15 questions concerning several software tools)*

Users' self-assessment of their skills

Figure 5. Users' Satisfaction with the Training

Satisfaction with the training

those problems the most dummy users have. More advanced users may have so special problems that the team is not capable to solve them. In those cases the users may be willing and also capable to talk straight to the back-end professionals, or the help desk team works as a mediator. One type of service does not fit to everyone (Mirani - King 1994).

USER TRAINING

In 1996, employees of our School indicated that they do not master their tools as well as they think would be necessary. Therefore we started a systematic user training program. Our main ideas in training have been the following:

- We do not use outside training services but arrange all the sessions by our own teachers. They are professionals in teaching students and have favorably offered their expertise to personnel development also – at a fair price. Our costs have been less than 20 euros per employee per year.
- Every session takes 90 minutes. Longer than that would not fit in one's calendar. Besides, the ability to learn the use of computers decreases dramatically after one and a half hours. Whole day learning sessions are very inefficient.
- The content of the lessons are planned based on user tasks, not on the features of the software in case.
- In the limit of practical restrictions, we try to form homogenous groups for lessons taking into account both the skill level and different tasks of the users.

The results in our surveys did indicate no major improvement from 1996 to 1999. However, from 1996 to 2003 there is a clear shift in users' self-assessment of their skills. Figure 4 illustrates this development, and Figure 5 shows that the users are quite satisfied with our training methods. So, it is possible to arrange effective training even with very low costs, when we concentrate in essential tasks and try to remove the most critical obstacles in users' work.

DISCUSSION

The main purpose of our surveys was to get useful practical information, relevance being more important than rigor. However, the results are valid and reliable and also scientifically interesting. Each time the questionnaire was delivered to every employee, no sample was chosen. In this kind of situation we should take into account the changes in the population, but because of the anonymity we can not provide that information. The response rate was more than 70 % in 1996 and in 1999, and about 40 % in 2003. In 2003, there was another internal study going on at the same time and that apparently caused the rate to decrease.

However, despite of these drawbacks, we may assess the responses as opinions of the whole population. The longitudinal study reveals the movements in the user satisfaction. There is clear evident that the actions had an impact. We have no statistical means to assess how well the actions explain the changes. There may be other independent variables affecting the satisfaction variable. In the case of standardization (Figure 2) it's hard to find any other reasons to satisfaction increase. That applies also to the correlation between help desk establishment and satisfaction to user support (Figure 3). The increase of user skills (Figure 4) may be explained to some extent by other factors than our training program. However, the satisfaction to training (Figure 5) increased anyway because of our new practices.

Our study gives an exceptional insight into the influences of standardization, 2-tier help desk and user training in the long run. The argumentation for strict control strategy is usually based on rational thinking, from the organizational development point of view. The counter-arguments usually base on user satisfaction, which is threatened by the power loss. We have, nevertheless, shown that in the long run the control strategy increases end-user satisfaction. Such a strategy makes the user environment more homogenous, and in a longer perspective that enables users to perform their duties better.

Communication problems between end-users and IT professionals exist, because their attitudes and relation to IT is different. To cope with the differences, a 2-tier help desk is a common real-life solution. Our results show clear evidence of the positive influence on user satisfaction.

Users face technical problems in their daily jobs if they cannot master the computers and software they need to accomplish their tasks. Therefore, training is wanted and training is needed. Our case indicates that offering training increases the user satisfaction. We have arranged training in a very cost-effective way and have succeeded to increase user skills significantly.

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