SIDE: Teaching Support Information System

ABSTRACT

The success of any information system in any area can be assessed by the voluntary accession of users. In an institution where there is a single system available to the users, this evaluation has to be done through user surveys.

SIDE is a portal based on information systems architecture to support teaching, academic management of courses and the learning process, in order to support the needs of integration of information flows in several university information systems. This portal, which is in operation at the University of Trás-os-Montes e Alto Douro since 2002, allows data management coming from the operation of courses, providing to the management entities one platform to support executive and decision support.

This portal proved to be an architectural solution that meets the needs of the institution where it was implemented. The longevity of its use as the main information system to support teaching in the institution proves that. However these facts are not enough to conclude about the quality of the system and the relationship with the users of the services they utilize.

In order to conclude about this we proceeded to carry out an opinion survey in order to get some feedback about the usability and quality of these same services. The surveys had a good participation in terms of number of people and that allowed us to take what good conclusions.

1. INTRODUCTION

Since 2002, the University of Trás-os-Montes e Alto Douro (UTAD) developed an information system called SIDE to support academic and teaching management. This information system was designed to dispose a set of services in order to meet the needs of the institution.

This article presents the validation of this portal. The validation has an essentially qualitative basis, and is made through analysis of users opinion about SIDE based on an online survey. The survey was distributed to all key actors of the platform with the purpose to gather data to assess the main features of the system and simultaneously to characterize the available services. The target users were divided into four groups: students, teachers, course directors and course managers. The results were obtained from a sample rating from between 30% and 43% responders in the four groups.

2. PORTAL SIDE

The SIDE is an information system based on the web, which aims to provide access to information from the academic life of the various courses available at UTAD University. In this system there are several roles, some with authentication, allowing communication between the elements that constitute the academic community (teachers, students, staff and free users), using the internet as platform.

All courses are provided with management services, including planning, teaching and assessment, supporting the distribution of information to each user role like news and alerts, documents, information about SIDE, calendars, schedules, exams, course pages with all the information related (see Figure 1 and Figure 2).


Figure 1- News in portal SIDE

Figure 2- Schedules in portal SIDE

This portal, which is in operation at the UTAD since 2002, allows managing and storing all the data related to the courses processes, providing to each university stakeholder one platform to provide executive and decision support.

Its architecture is modular and comprises a set of user-oriented services framed in the academic activities. Students and teachers are the main actors in this system. The main services of the SIDE are assigned to those two types of users. However, in order to integrate the information structure of the courses, there is a set of management services targeted to the course directors and course managers. Course managers generate structural information (lesson plans, schedules, etc.) and course directors make use of information produced in the system for executive and decision support.

To turn this process more efficient, the SIDE system interacts with other systems of the institution, providing or receiving information regarded as important in the management of various entities of UTAD (see Figure 3).
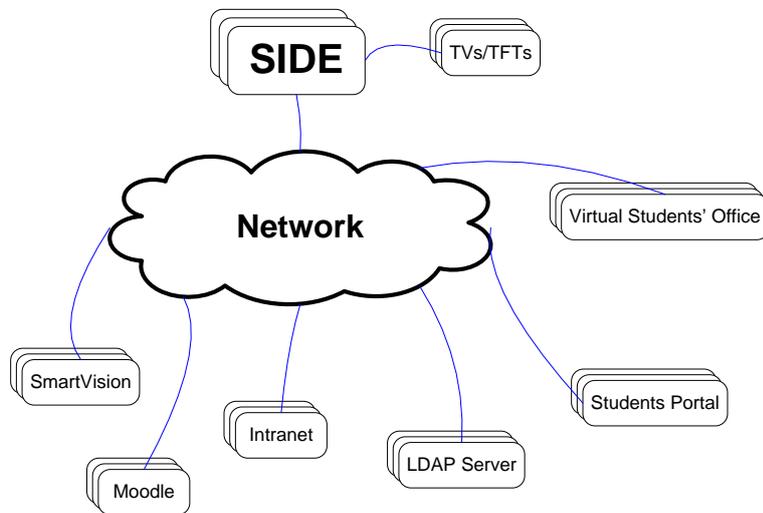
Figure 3- SIDE's interaction with other systems.

3.   PERCEPTIONS OF USERS ABOUT THE SIDE PORTAL

Taking into consideration that SIDE portal is online since eight years ago and supports several teaching activities of the courses within the UTAD, this indicates that the implemented model meets the needs of the institution. We consider that the user's opinion related to the performance of the system is very important to adapt as close as possible the features of the system to the user's needs. The feedback from users about SIDE is very important because we can obtain value data that we can't obtain using the help desk service or using the server logs. The perceptions of users are positive and frequently presented in a constructive manner. Based on the users' opinion, we had made the validation of the SIDE portal in terms of requirements and usability.

The validation of this system has an essentially qualitative basis, and is made through analysis of four surveys available to the different types of users. There were prepared surveys targeting all key actors in the platform with the purpose of gathering data which allowed to assess the usability and functionality of SIDE and simultaneously to characterize the experience of users in terms of information technologies, that could had an impact in the acceptance of SIDE portal.

The target users were divided into four groups: students, teachers, course directors and course managers. The population considered was 6952 active students, 574 teachers, 144 course managers and 157 course directors. The results were obtained from a sample of questionnaires answered from the total of users referred previously.
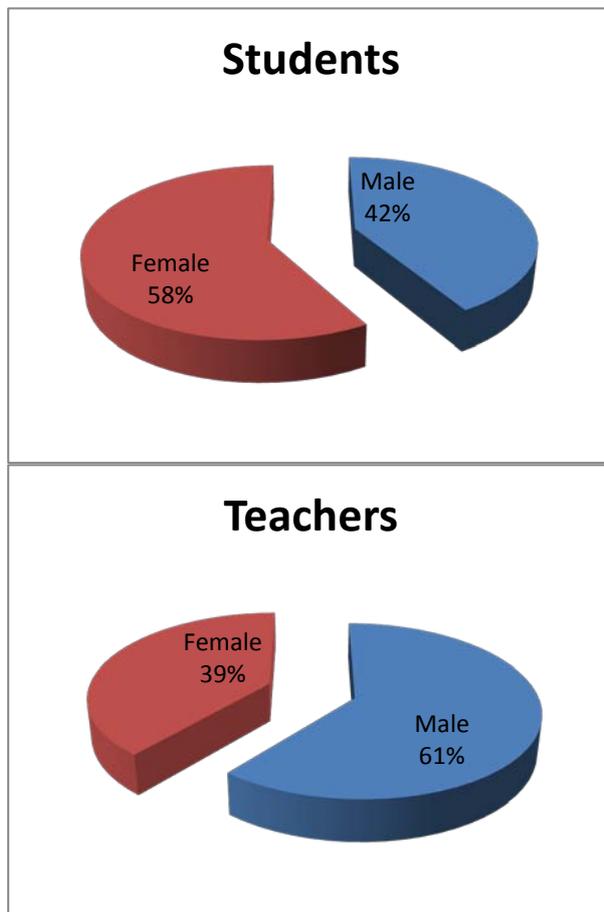
- Students: 32.6%
- Teachers: 42.8%
- Course managers: 39.6%
- Course directors: 29.9%

In any of the groups we collect demographic data like gender, birth date and type of use of Internet (how long is using and what services they commonly use). Beyond these data, other topics were introduced in the questionnaire in order to collect the user's opinion about the use of SIDE services, taking in account each type of group that the users belong.

3.1. USER DEMOGRAPHICS

The importance of understanding what type of users that use SIDE is related to the fact that due to the particularity that the use this web application is related to the user's experience in using this type of applications and can influence the success of this system.
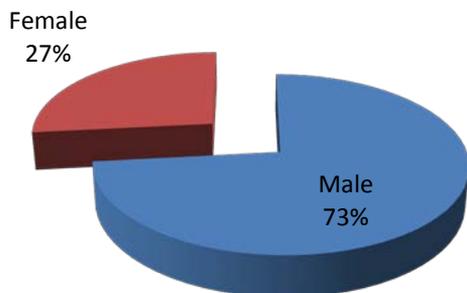
Users can be divided into two groups according to their age. They can be distinguished between two generations of users: students, born between 1982 and 1992, and other users that include managers, directors and teachers who were born between 1960 and early 70s.
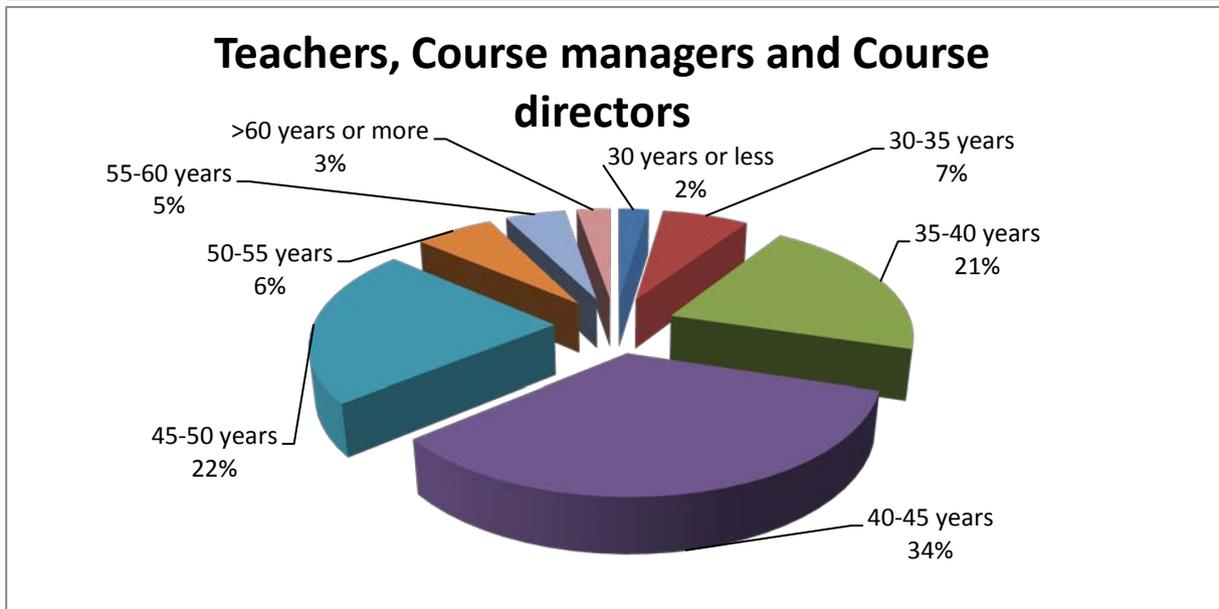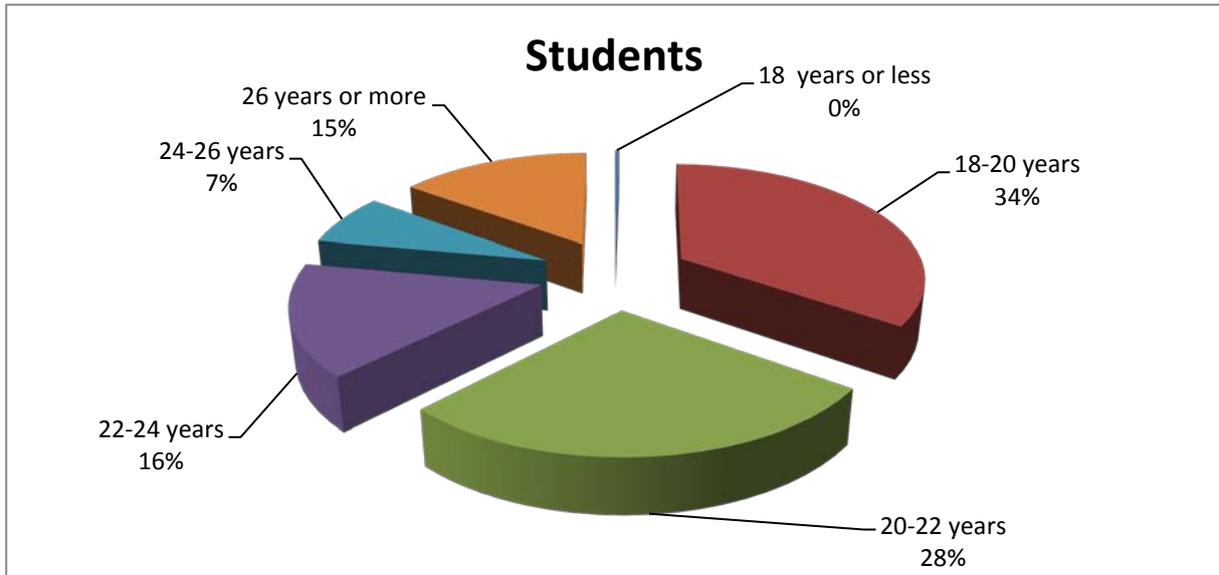
Course Managers

Female
29%

Male
71%
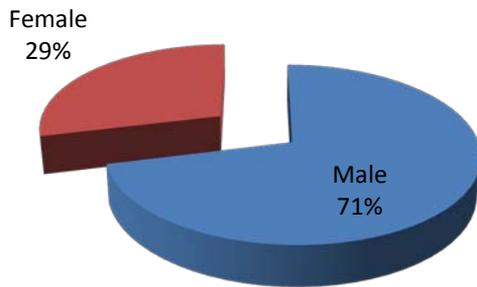
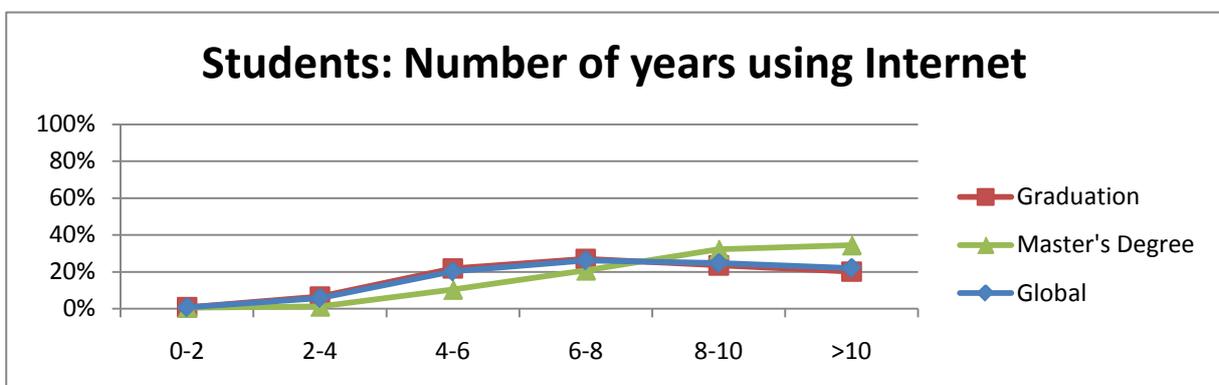## Course directors

Female
27%

Male
73%

In the students group there is a slight predominance of females over males. In all other user groups is the opposite where there is a slight higher number of male users.

These two generations of users already have considerable experience in using web applications. This can be confirmed by analysing the next graphs which indicate that between 70% and 100% of teachers already use the Internet for over 10 years. The same is verified for students, where 80% of these users already use internet for over than 6 years.

Students

- 18 years or less — 0%
- 18-20 years — 34%
- 20-22 years — 28%
- 22-24 years — 16%
- 24-26 years — 7%
- 26 years or more — 15%

Teachers, Course managers and Course directors

- 30 years or less — 2%
- 30-35 years — 7%
- 35-40 years — 21%
- 40-45 years — 34%
- 45-50 years — 22%
- 50-55 years — 6%
- 55-60 years — 5%
- >60 years or more — 3%

All users have experience in using the Internet and there is a higher percentage of master's students who have greater experience of undergraduate students, which is related to age.

Students: Number of years using Internet

Legend: Graduation, Master's Degree, Global

Categories: 0-2, 2-4, 4-6, 6-8, 8-10, >10

**Teachers (by school): Number of years using Internet**
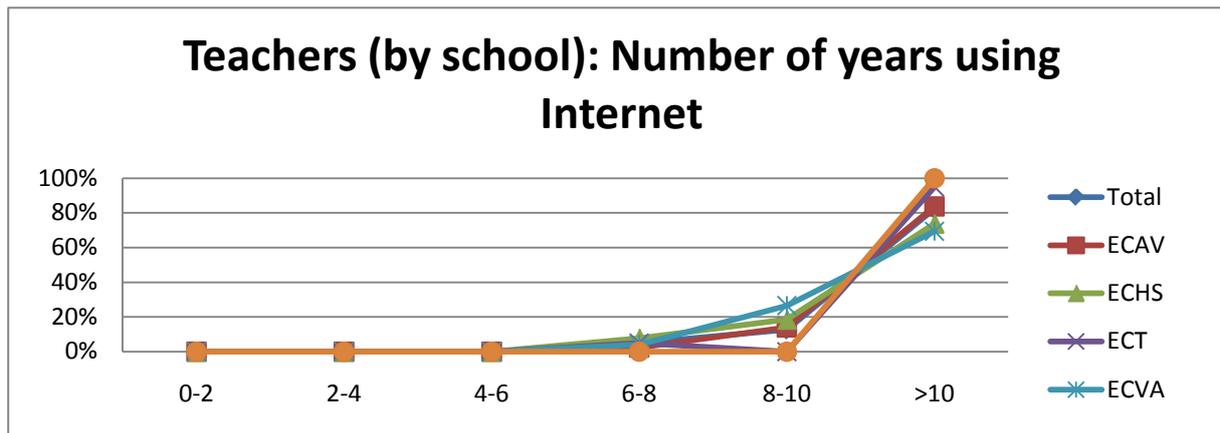
The experience of using web applications is an important issue in the adaptation of any user to specific applications of this type, particularly in the perception of how to navigate within the application, how to use forms, understanding the structuring of information, etc.

With regard to the used applications, we highlight those that are related to communication between users. The communication between teachers or between students can occur by professional or private matters, but it also can occur between teachers and students. Communication between these two types of users is an important part of teaching, being a supplement to classroom teaching because teachers can provide to students online support.
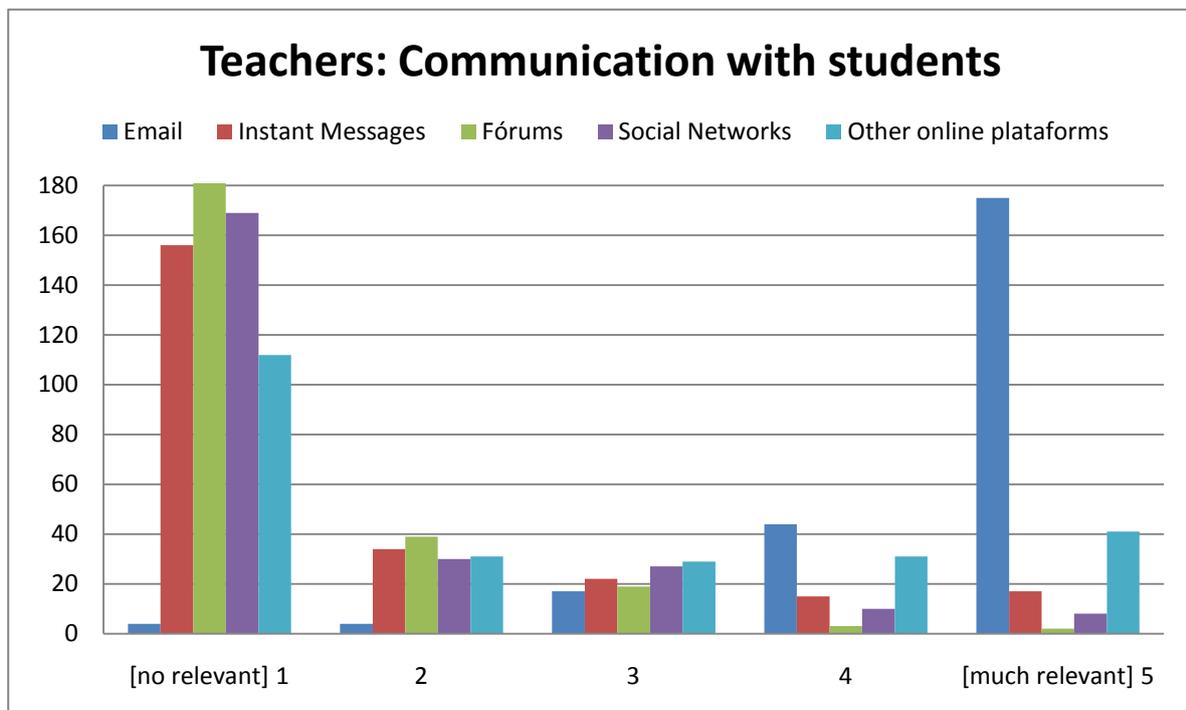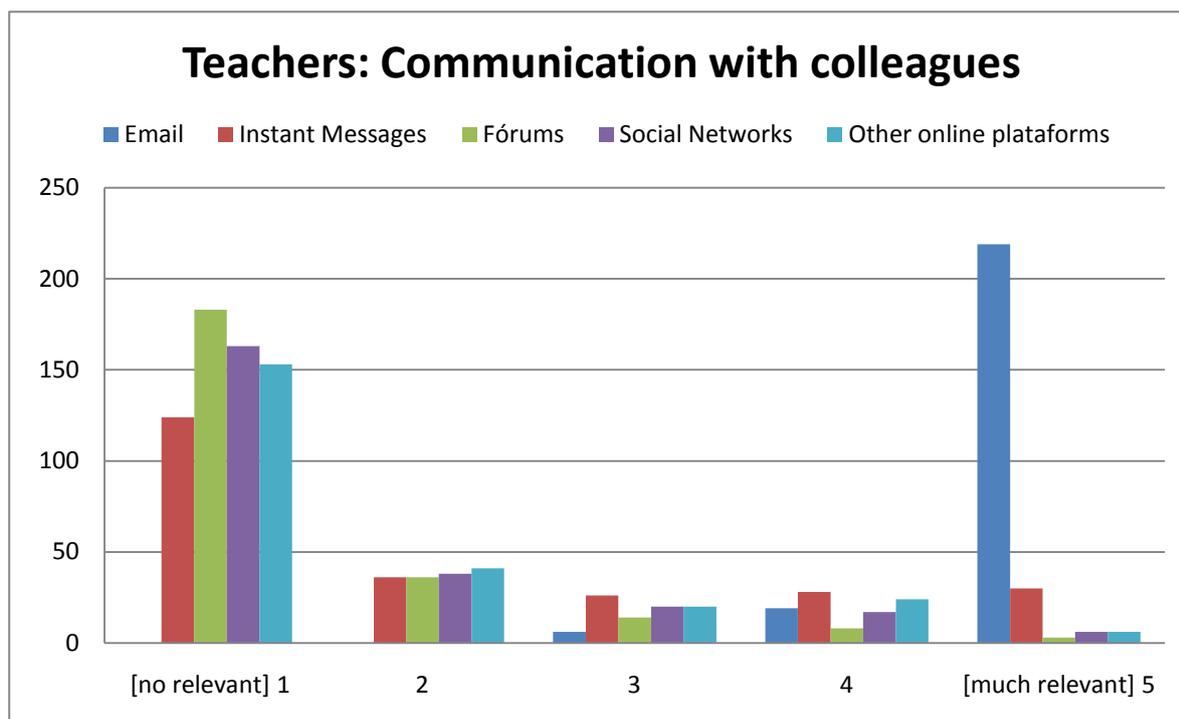
Student's communication with Teachers
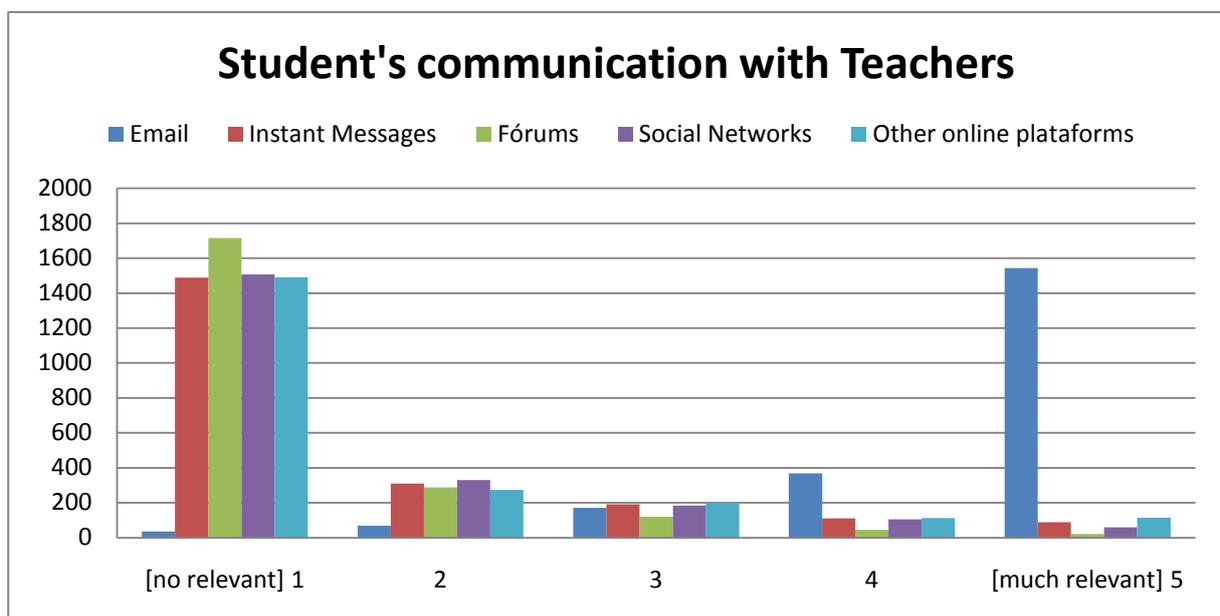
The communication tools which students use more is the email and the newest form of web communication: instant messaging and social networks.

Student's communication with colleagues

Email Instant Messages Fórums Social Networks Other online plataforms
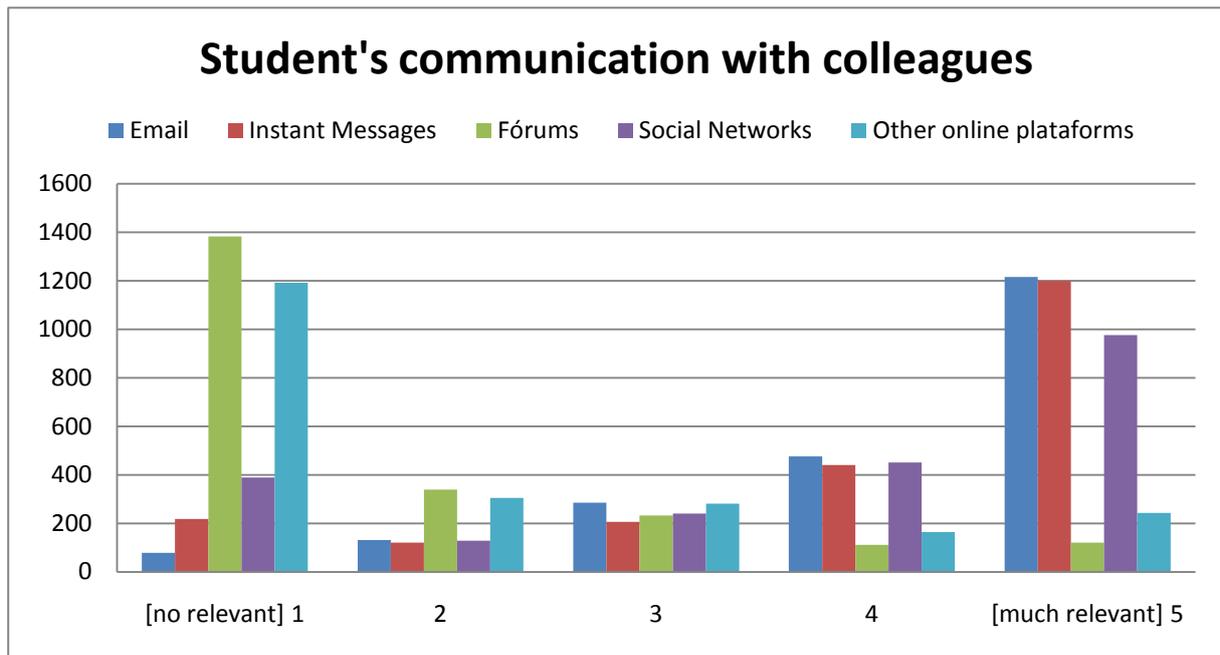
This preference disappears when the communication is between students and teachers. This is because the teachers select as their preferred communication tool the email. At this point we identify the differences between the two generations of web users. The older generation prefers the classic tools communication and the younger generation prefers social networks.

Teachers continue to consider the email as the communication tool more often used regardless of whether it is with students or other teachers.

Teachers: Communication with students

Email Instant Messages Fórums Social Networks Other online plataforms
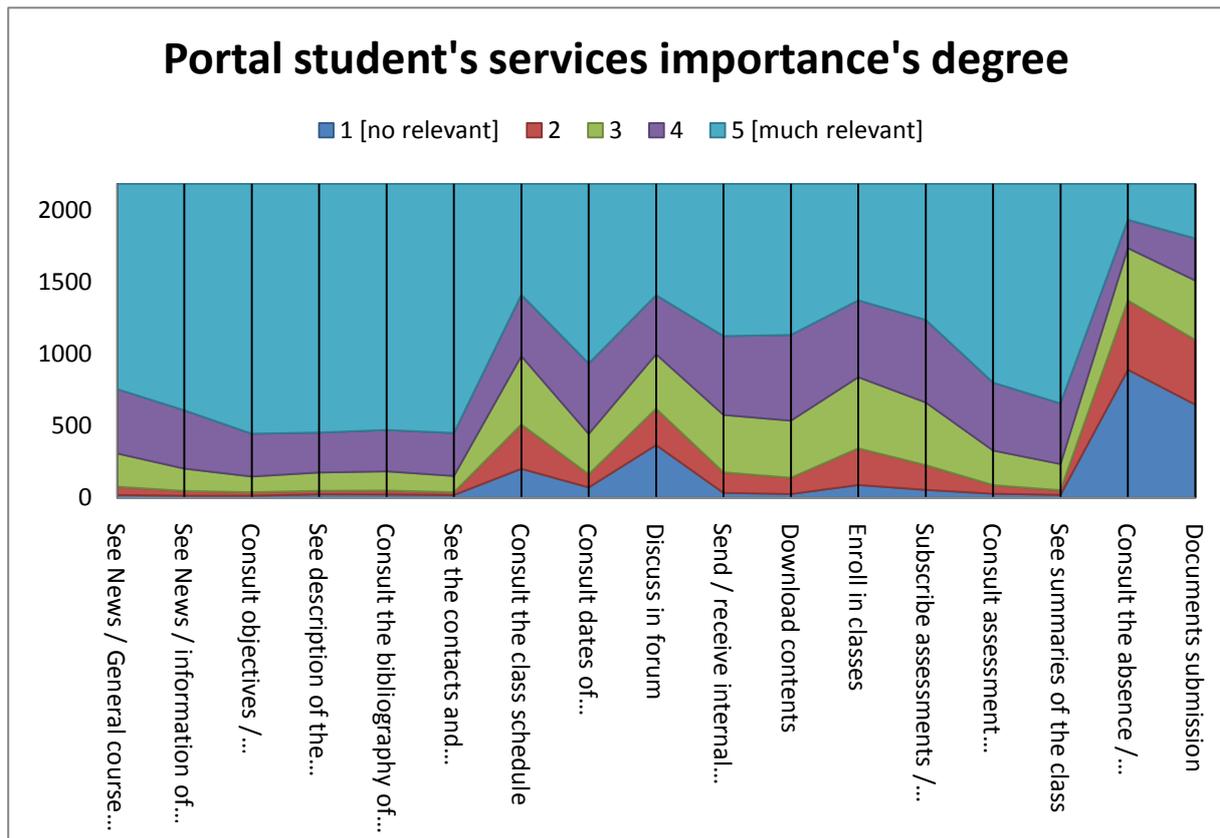
Teachers: Communication with colleagues

### 3.2. PERCEPTIONS ABOUT THE SIDE PORTAL

The survey had a section where the users can qualify the level of satisfaction with the available services in SIDE, classified between 1 (less valuable) and 5 (most valuable).

For the students, the questions where about services like consulting news, consult the class schedule, download contents from course units, consult dates of assessments, etc.

Considering that every response above or equal to 3 can be a positive one, we can conclude that the responses are generally positive. Looking at the next graphic (cumulative area graphic) we can observe that the area occupied by the three biggest degrees all over the services is large. The larger the area occupied the best is the result. We can see that there are two exceptions in services "Consult the absence / presence" and "Documents submission". In these cases the amount of bad responses is about 50%.

Portal student's services importance's degree

■ 1 [no relevant] ■ 2 ■ 3 ■ 4 ■ 5 [much relevant]

Categories (x-axis):
See News / General course…, See News / information of…, Consult objectives / …, See description of the…, Consult the bibliography of…, See the contacts and…, Consult the class schedule, Consult dates of…, Discuss in forum, Send / receive internal…, Download contents, Enroll in classes, Subscribe assessments / …, Consult assessment…, See summaries of the class, Consult the absence / …, Documents submission

In respect to teachers group, the questions where about services like define assessment dates for the course units, publish grades of assessments and examinations, goals and the program of course units, etc.

Portal teacher's services importance's degree

■ 1 [no relevant]   ■ 2   ■ 3   ■ 4   ■ 5 [much relevant]
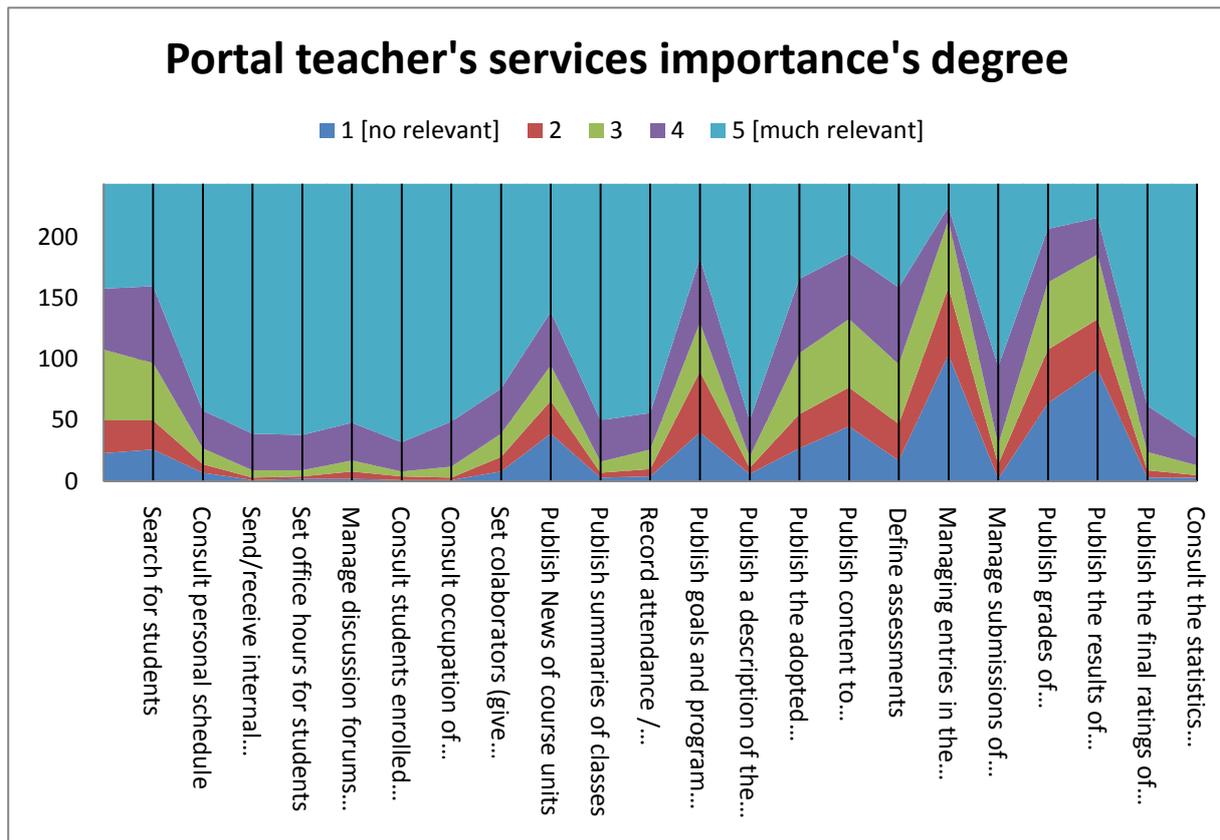
The results obtained from the teacher's opinion are also positive, because more than 50% of services had good classification. Only five services where considered less important. These services are "Manage submissions of digital works", "Publish the results of frequency for the course unit", "Publish the final ratings of the course unit", "Publish a description of the methodology for evaluating the course unit" and "Define assessments". Despite of that, the global results are very positive.

In the case of the services for Course managers, the results are similar. The users where asked what services they prefer like publishing news, classes schedule management, justify absences of students, etc. When we talk about management services we have to consider that the users have permission to use these services by delegation of permissions. So the fact that one user have permissions to publish news doesn't mean that the user can manage the classes schedules. All services can be individually delegated to the user. Because of this, it was added a new option in the possible responses to these services called "I don't have privileges or I don't use". This option is considered to be a neutral response.
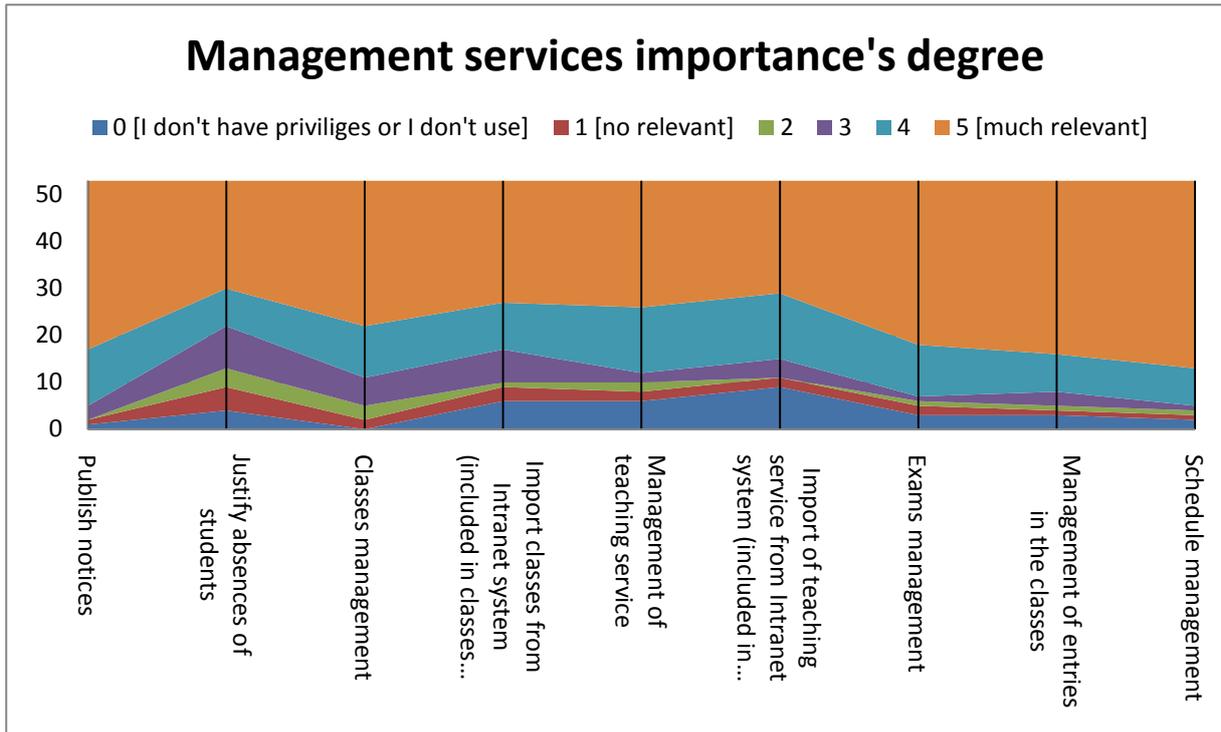
The results obtained for these services were very positive and homogeneous. We can even say that if we don't take into consideration the neutral responses, which correspond to the area at the bottom of the chart, we can say that the percentage of negative responses is very low. Is this case we don't identify any service with a very low preference.

With regard to the services of course directors, they are divided in two groups. The course management services and the specific course director services.
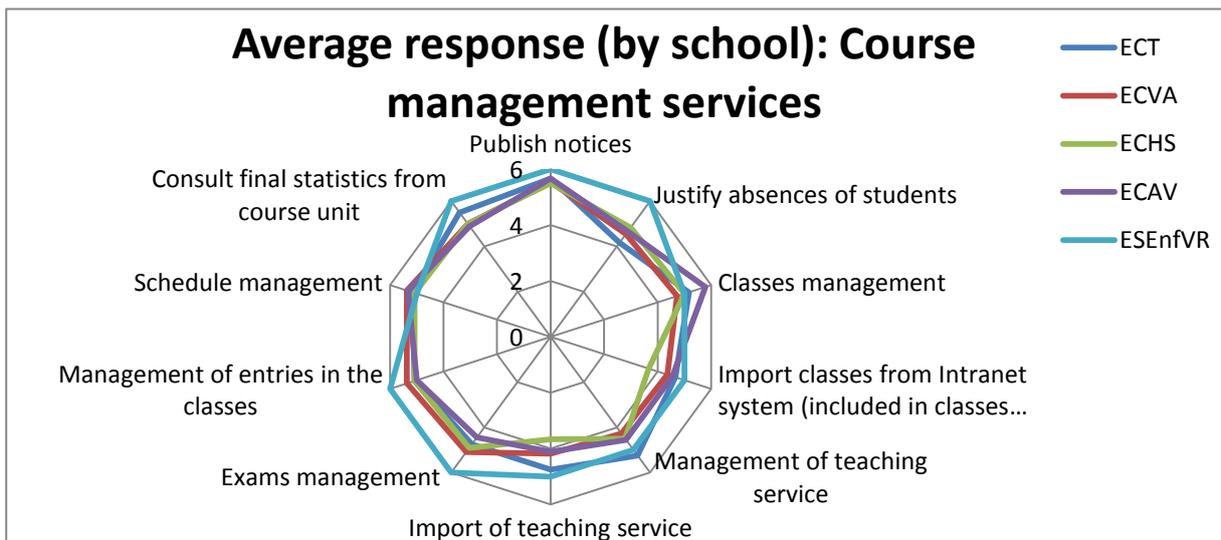
The first group consists in the same services that the course managers have. So we can join the results to the ones showed previously. In the case of the course directors the results were divided by school. The schools are School of Agriculture and Veterinary Sciences (ECAV), School of Humanities and Social Sciences (ECHS), School of Science and Technology (ECT), School of Life Sciences and Environment (ECVA) and Nursing College (ESEnfVR). Despite this division, we can assume that the results remain good values obtained for the managers of course. It's possible to conclude that the results still remain in a good level for the managers of course. This can be shown in the next graphic. Each one of the series of values presented corresponds to the results of one school. As much this curve is far away from the centre of the radar, the satisfaction with the service is higher. In this graphics the results are presented by an average value instead of an absolute value.
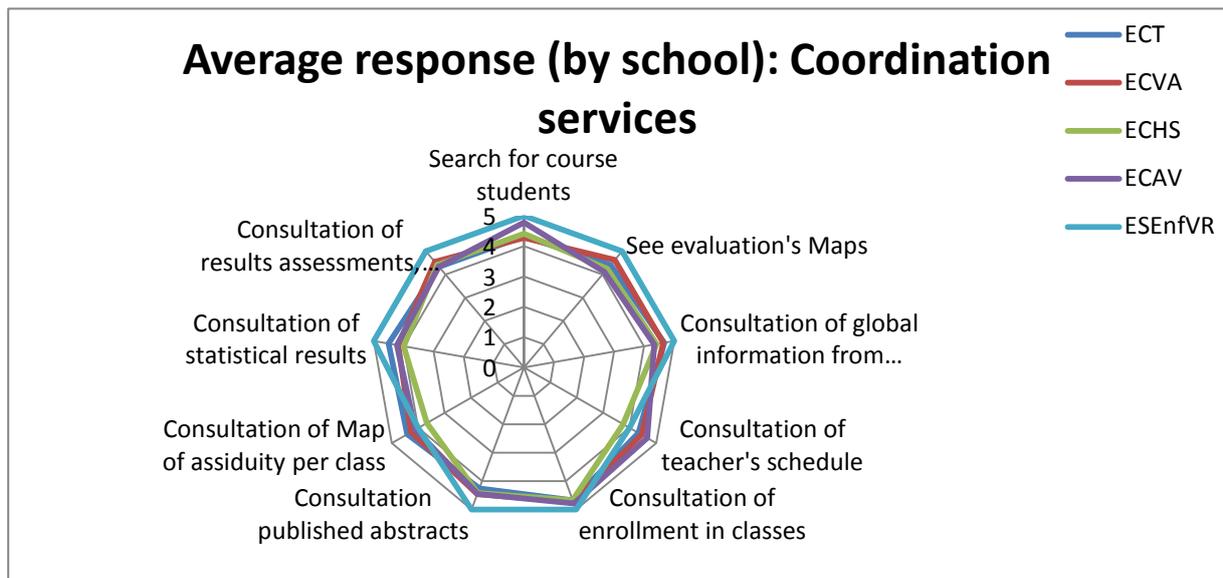
In the second group were included services like consulting global information from course units, consulting the Map of assiduity per class, consulting the results of assessments, examinations and final grades, etc. The results related to coordination services still to present good results as the previous.

To complement all these questions, it was given the possibility to users to enumerate negative points of SIDE that they consider that could be improved. This opinion was gathered through free text responses on which users globally indicated that some of the information flows between the various systems need to be improved so that there may be an increase in productivity in some management tasks.

4.   CONCLUSIONS

The users sample obtained is very significant and permits to obtain several conclusions about the use of the SIDE portal. The amount of response was more than enough to get what we think is the global opinion of the users. After the data analyses it was possible to confirm that the quality of services provided is very satisfactory, most of the services had a very positive opinion, although some may have been considered less important because these are services that are not known by the users.

The characterization of users demographics allowed to conclude that there are several generations of users, most of them had the same level of experience in the use of internet applications. This experience is important to minimize adaptation problems of using a web application interface.

Although these good results, the users consider that the academic management services need to be improved in order to facilitate the management of tasks that are more intensive.

5.   REFERENCES

- ❖ Almeida, L. Freire, T., Metodologia da investigação em psicologia e educação, Psiquilibrios, 2000
- ❖ Cardoso, E. L.. Ambientes de Ensino Distribuído na Concepção e Desenvolvimento da Universidade Flexível, Tese de Doutoramento em Sistemas de Distribuição, Universidade do Minho, 2005, Braga.
- ❖ ECMS. What is as portal and what types of web portal are there? Retrieved 2010-12-17, 2011, from http://www.contentmanager.eu.com/portal.htm
- ❖ Janne Jul Jensen, Mikael B. Skov and Jan Stage, The WPU Project: Web Portal Usability, http://ercim-news.ercim.eu/en78/rd/the-wpu-project-web-portal-usability, retrieved in 2011
- ❖ Myers, M. (1997). Qualitative Research in Information Systems. MIS Quarterly, 21.
- ❖ Strauss, H.. All About Web Portals: A Home Page Doth Not a Portal Make Web Portals and Higher Education : Technologies to Make IT Personal (pp. 32-41): 2002, Jossey-Bass Inc.