

Feeding Students Quality Assessment Feedback in Curricula Design and Restructuring

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Abstract

Quality plays a major role in educational systems and should be assessed in every educational institution. E-learning tends to be looked at as an imperfect alternative for face to face teaching methods and quality assessment can revert this attitude towards e-learning. ISEGI - New University of Lisbon (UNL, Universidade Nova de Lisboa) teaches, since 2002, a MSc in Geographical Information Systems and Science (GIS&Sc) through e-learning which is the first MSc in Portugal offered in distance learning mode. In order to evaluate this course and improve its quality, a study was carried out to identify the student's experience with this learning methodology, focusing several topics such as: curricula contents, instructional design, lecturers, students' relationships and platform technical issues. This study was supported by a questionnaire/interview answered by present and former students. The questionnaire, the interview methodology and the quality assessment procedure are detailed. Finally, the results are discussed and some conclusions of this study are drawn.

1. Introduction

E-learning uses recent information and communication technologies to disseminate knowledge over the Internet. The Internet is an important facilitator because it enables all students that are interested in life long learning to pursue with their studies. It is geographically independent and everybody can study according to her or his convenience.

With e-learning it is possible to use new ways of teaching and learning. We are facing a new and alternative paradigm in knowledge transmission (Painho et al, 2001). Universities are no longer only centers of knowledge where students need to go physically to get in contact with wisdom. They are also becoming knowledge mediators. Traditional classrooms are becoming virtual communities that share common interests and exchange information. Students have a more active role in knowledge seeking.

ISEGI teaches, since 2002, a MSc in Geographical Information Systems and Science (GIS&Sc) through e-learning which is the first and still only MSc offered in Portugal through distance e-learning mode.

The MSc in GIS&Sc is fully adapted to the Bologna Convention and its structure comprises the following elements:

- A Specialization course assembled with a set of Curricular Units (Table 1), equivalent to 60 ECTS (European Credit Transfer System), lasts two curricular semesters.
- A scientific Dissertation, Professional Training or Project Work,, equivalent to 35 ECTS with the duration of one semester.

Specialization Course		MSc
1 st Semester 30 ECTS	2 nd Semester 30 ECTS	3 rd Semester 35 ECTS
GIS & Science 7,5 ECTS	GIS Applications II 7,5 ECTS	Dissertation 35 ECTS
Spatial Data Models 7,5 ECTS	GIS and Modelling 7,5 ECTS	Professional Training 35 ECTS
Data Bases 7,5 ECTS	Geospatial Data Mining 7,5 ECTS	Project Work 35 ECTS
GIS Applications II 7,5 ECTS	GIS in Organizations 7,5 ECTS	
Cartographic Sciences 7,5 ECTS	Remote Sensing 7,5 ECTS	

■	Required Curricular Unit
■	Optional Curricular Unit

Table 1 - MSc in GIS&Sc Curricular structure

We have all witnessed the boom of e-learning courses in the last 15 years. The reasons for this growth (Brown, 1995, in Belanger and Jordan, 2000) are related with the lower cost of computer hardware, software and telecommunications services, the existence of a younger generation familiar with computers and Internet, better access to computers, increasing network bandwidth and more pleasing user interfaces.

E-learning courses tend to be looked at as an imperfect alternative to face to face courses. One of the ways to revert this attitude towards e-learning is through student's quality assessment feedback.

Quality assessment plays a major role since the beginning of the MSc in GIS&Sc, and it has been applied in processes like curricula design and restructuring of the course. Therefore it is essential to develop a highly meticulous quality assessment procedure in order to monitor every stage of these important processes (Painho et al, 2002).

2. Study Design

By acknowledging the need for the quality assessment we have decided to evaluate the student's satisfaction, towards a set of course topics, to identify and improve less positive features of the course.

Within this scope we have carried out a study focused on the most important topics which are considered key factors in the success of e-learning courses (adapted from Ryan et al, 2000):

1. Curricula Contents (Scientific knowledge)
2. Instructional Design (Lectures)
3. Student's Relationships (Communication and motivation)
4. Platform and Technical Issues (Technical support)

2.1 Target population

The target population of the conducted quality assessment comprises all present and former students from the six editions of the MSc in GIS&Sc (2002/2007).

The questionnaire was delivered to all the students of the course and was answered by about 20% of the target population that comprises 200 students.

2.2 Questionnaire

Building a questionnaire is a complex task and requires care and attention in two different areas: macro-structure (general offset of the questionnaire) and micro-structure (design and creation of its questions) (adapted from Vilares et al, 2005).

In order to achieve the best results we have used the following setup:

- Macro-structure
 - Information given to the interviewed students: in order to get unbiased answers and to motivate the interviewed students we have decided to maximize the information given to the interviewed students about the objectives of the questionnaire.
 - Interview and questionnaire were both used in order to maximise the number of answers.
 - Flow and progression: the Interview/Questionnaire started with simple and general questions and moved on to more specific questions.
 - The Interview/Questionnaire was sectioned according to the topics established in the study design.
- Micro-structure
 - Types of questions used by purpose: factual data, socio-demographic, attitude and behaviour.
 - Types of questions used by type of answer: implicit scales, dimension scales, semi-open and open.

3. Results and Discussion

In this section we present and discuss the results obtained through the questionnaire answered by about 20% of the present and former students that attended the 6 editions of the e-learning MSc in GIS&Sc.

The main goal is to describe the MSc in GIS&Sc students and to evaluate the e-learning teaching methodology used, through a detailed analysis focused on the following components:

- Characterization of the MSc in GIS&Sc students
- Curricula contents
- Instructional design
- Lecturers and student's relationships
- Platform and technical issues

With the students' experience on these topics we expect to draw important conclusions on quality assessment of the MSc in GIS&Sc, rendering possible the implementation of suitable procedures in order to improve this course.

3.1 Characterization of the MSc in GIS&Sc Student

The majority of the MSc in GIS&Sc students is male (60%) and the more frequent age group is from 25 to 35 years of age (61%). Figure 2 shows the distribution of male and female students by age group.

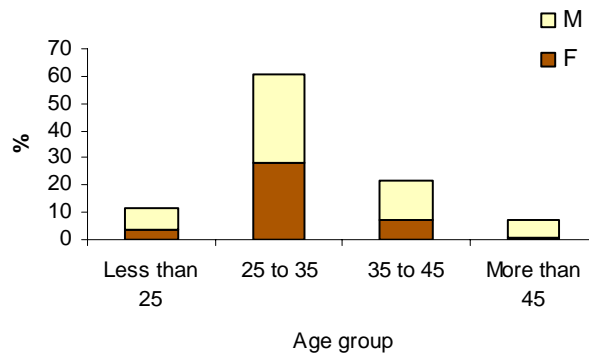


Figure 2 - Distribution of female and male students by group age

One of the expected consequences of the e-learning approach is the diversity of the residence region of the students. There are 6% of international students coming from several countries of Europe, Africa and South America (Figure 3).

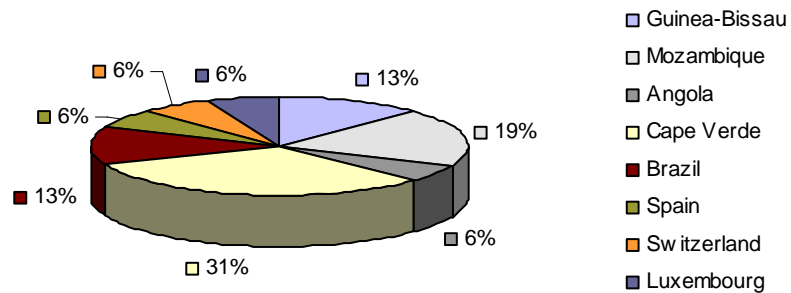


Figure 3 - Distribution of the international students by country of origin

The 94% of national students are also fairly distributed along the Portuguese territory, outside the Lisbon district (Figure 4).

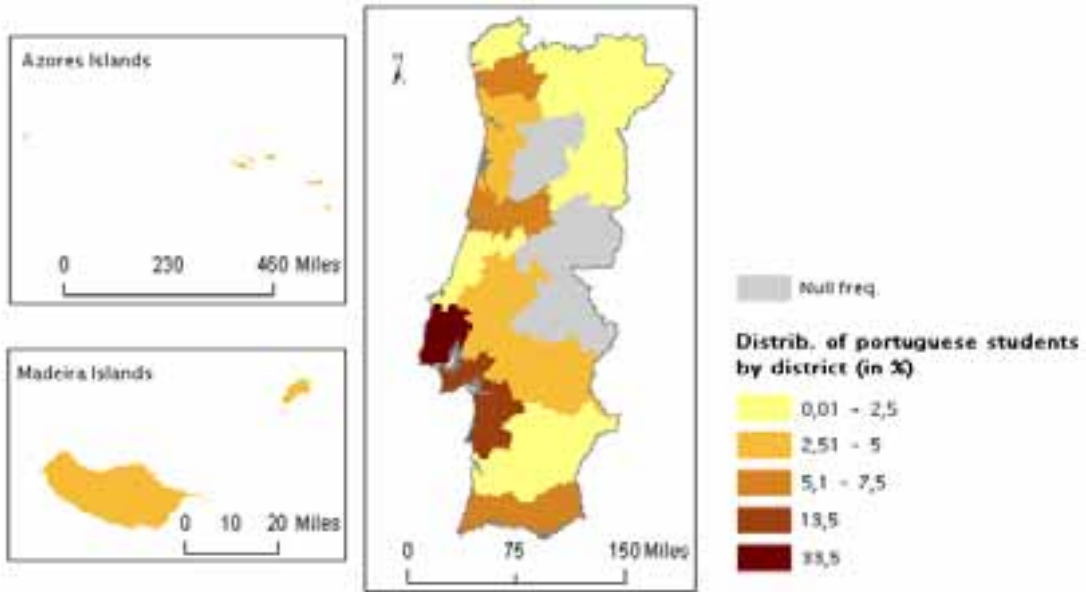


Figure 4 - Distribution of the national students by districts

The academic background of the students is diverse and embraces many scientific areas that were grouped in the following categories:

- Computer Sciences
- Earth Sciences
- Geographic Sciences
- Mathematics/Statistics
- Military Sciences
- Other

Figure 5 represents the distribution of the MSc in GIS&Sc students according to these academic background categories.

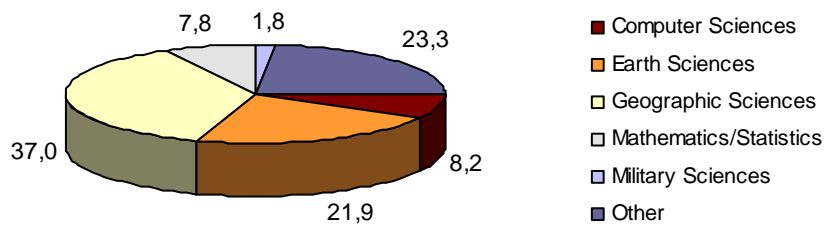


Figure 5 – Students academic background (%)

According to the respondents of the questionnaire, the great majority has a fulltime job (98%) and 65% of these have an employment related to this master course. The main reasons that lead the students to the choice of the e-learning MSc in GIS&Sc are: professional reasons (32%) and schedule flexibility due to distance learning (61%).

All questioned students admitted to already have some basic computer knowledge, particularly on internet related issues.

3.2 Curricula Contents

The great majority of students are 'satisfied' or 'very satisfied' with the curricula contents especially with the importance (95%) and usefulness (98%) of the subjects taught. 88% considered the documentation made available well organized and fairly completed. Most of the students (85%) agreed that the topics were well explained in the documentation, although a few of them (12%) did not find the documentation design attractive.

3.3 Instructional Design

Regarding the platform learning environment, 85% of the students found the contents navigation well structured and 97% were satisfied with the contents organization. The assessment method was also satisfactory for most of the students (90%). The only issue related with the learning process that was referred as non satisfactory by 10% of the students is the planning of the scholar calendar.

3.4 Lecturers and Student's Relationships

Merely 5% of the students found difficult to contact the lecturers and only 2% were not satisfied with their response time. Nevertheless, the great majority (90%) considered the lecturers overall performance as very good. Furthermore, 81% of the students felt closely followed by the teachers.

All students kept in touch with other colleagues along the MSc course, although 41% stated that it was not often. When asked if they keep in touch with former colleagues after graduation, 38% answered negatively.

3.5 Platform and Technical Issues

A large number of students found easy to learn how to use the platform (97%) and to access the subject's contents (95%). However, 41% had technical difficulties using the platform and 24% found difficult to solve the arisen problems. These technical issues may be related with difficulties in the synchronous sessions (73%).

Among the students that had difficulties in the synchronized sessions we can point out the following reasons:

- connection difficulties (88%);
- participation problems (43%);
- slow usage (55%);
- readability of the white board (34%).

Regarding the use of chat and forum functionalities the students' opinions were divided (Figure 6).

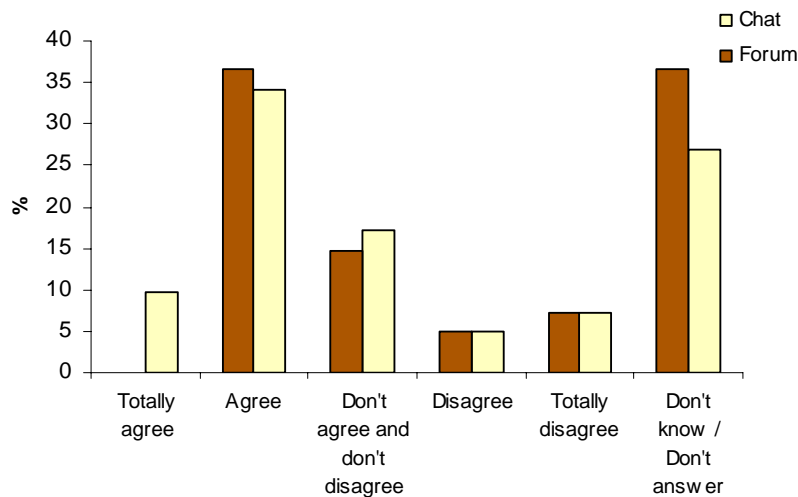


Figure 6 – Students' opinions on the statement 'I found it easy to use the chat and forum platform functionalities'

The students overall opinion about the accessibility, appearance and functionality of the platform is quite good (Figure 7).

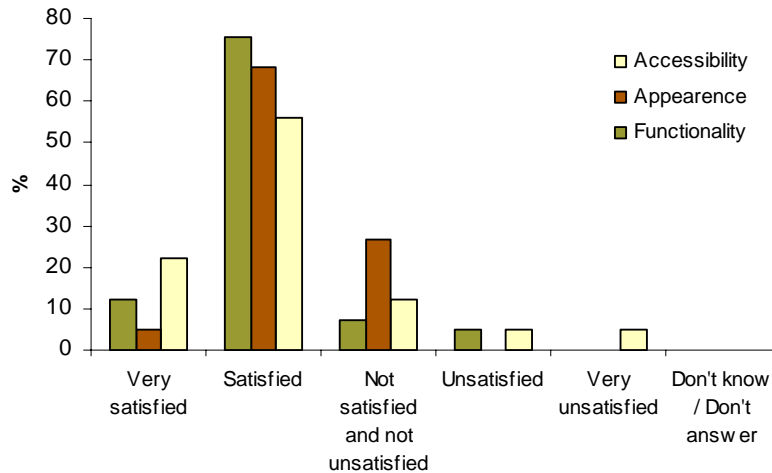


Figure 7 – Students’ opinions about the accessibility, appearance and functionality of the platform

Most of the students (78%) are ‘satisfied’ or ‘very satisfied’ with the platform accessibility, although 9% referred it as non satisfactory. This might be explained by the already mentioned difficulties in the synchronous sessions and unsatisfactory internet connections.

The e-learning platform appearance was classified as good by 73% of the students. Moreover, there were no negative opinions about this issue. Merely 5% of the students are not pleased with the platform functionality, whereas 88% characterized it as quite satisfactory.

4. Final Remarks

The academic background of the students of the MSc in Geographical Information Systems and Science is diverse and embraces many scientific areas. This study confirmed that the e-learning approach allows having students living at distant and diverse regions. Moreover, the distance learning approach makes possible the enrolment of working students, since the main reasons pointed out to join this course were professional reasons and schedule flexibility.

The quality of the curricula and instructional design was considered as very good. The importance, usefulness and organization of the subjects taught were stressed as

exceptional. Furthermore, the students overall opinion about the accessibility, appearance and functionality of the e-learning platform is of a high standard.

These encouraging results allow us to conclude that the MSc in GIS&Sc has high quality standards and the distance learning is a valuable approach. Nevertheless, there are issues revealed through this study that can be improved, especially technical difficulties.

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