INFORMATION LITERACY IN PORTUGAL:
SOME RESULTS OF A RESEARCH PROJECT

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ABSTRACT

A paper present some data about a project which, although focused on the specific case of Portugal, intents to make a scientific approach of the challenges of the European Higher Education Area (EHEA) and its impact in the field of the information literacy, considering the actual context of the Information Society. The main questions that it intents to answer are: understand how the university students face the new competences required by the creation of the EHEA; know how these students are prepared in terms of information competences, in three different moments, i.e., prior to the university, during the university frequency period and at the end of the university degree. The inter and transdiscisplinary approach between the Education, Cognitive Sciences and Information Science are clearly stated in the epistemological and theoretical model that supports it, profiting of the interaction between information needs produced in the educational context and the student's informational universe and its dynamics, without forgetting to consider the connections of student's informational behavior with their personal and social context and demands. The study will be performed on a national scale, in order to allow comparisons between regions with different development levels. The sample will include students from both study cycles. The methodology used in this study will be divided in two areas, qualitative and quantitative research. The qualitative research will permit to obtain precious indicators about the students' information behavior, expectations, needs and use of information. The indicators obtained in qualitative research will be used to design questionnaires, which will to be performed in 17 high schools and 17 universities, with an estimated sample of approximately 2000 students. The final result of this research will be the design of an informational behavior map, at the university level, and the development of a model concerning the promotion of information competences in Portuguese university students.

Keywords: Information Concept; Information Society; Information Literacy; Information Behavior; Higher Education; Portugal; Research Project.

INTRODUCTION

To develop an information literacy project in Portugal we had to consider the national and international context. In the first case, we analyzed and studied the IL Portuguese bibliography production to know the level of implementation of it. In this process we could check two aspects, one was that the theme was still in an incipient state, and two was that there weren't any Portuguese projects similar or with the same aims and approach. In relation with international area we detected a very high bibliographic production, especially between middle of 90´s and first years of this century. But we did not found initiatives where a research group tries to make an IL diagnosis of a country. Some research investigated about a group of library users or a group of students but there wasn't an integrated and global perspective.

The major purpose of this research is to investigate the information competences levels in Portuguese universities students. But to get these results we need to hold other objectives. We have considered education as a system. For this, we decided to analyze precedent educational level, the high school. We understand that information competences acquired in this level are going to determine the information behaviour in university students. A secondary objective in our project is to investigate how students arrived to university level. For this, we investigated not only information skills in university students also high school student's population.

We can divide our project in two important phases: diagnosis and design of strategies. Final aim is to define an information skill strategic plan in order to adapt the Portuguese universities to EHEA and Information Era. Although, our purpose will not be complete if we don't consider a last objective which is to sensitize academical and political authorities on information literacy problematic.

In connection with our aims we part from several ideas in order to develop eLit project. They are:

    a) It is necessary to carry out a specific study in Portugal with the purpose of determine information literacy level;

    b) In order to determine the aptitude and attitude of the university students the higher education information literacy level must be assessed;

c) The informational background is potentially different in distinct geographic areas of Portugal;

d) The information behavior is connected to expectative, needs and lifestyle;

e) The creation of information literacy strategic program would be a warrant to an optimal way to adapt Portugal to the EHEA and to the Information Era.

Not dissociated and functioning as a structural reference of this project is the definition of a theoretical-practical model that must be reached in order to show the importance of the connection between information literacy and information behavior, as we have described before.

2 THEORICAL POINT OF VIEW

According to these conceptual premises there are some inevitable inferences implied in the theoretical corpus on which this project is based and from which the results of the research will de interpreted:

a) Information and explicit knowledge are synonyms, both differing from cognition (in which the concept of implicit or tacit knowledge becomes dilute);

b) Information and communication are not symmetric concepts but rather complementary and indissociable;

c) Information (or explicit knowledge) comes from a binomial, which we can characterize referring to Reuven Feuerstein, a Piagetian psychologist (VARELA, 2006), to whom biological ontogeny (which considers the human being as a set of cells, connected with the environment) continuously interacts with the socio-cultural ontogeny (responsible for the social, moral and communicational structure of the human being);

d) Information substantially differs from document, although a document cannot exist without it;

e) From the perspective of Information Science, information literacy is related to the process of learning and acquiring competences and skills directly

connected with the creation, search, organization, storage, diffusion, transmission and transformation of information or knowledge;

f) Information literacy is a fundamental topic within information behavior, having developed significantly in the USA and disseminated from there; and

g) The Information Science approach to information literacy presumes a natural and fertile interdisciplinary intersection with Education Sciences, Cognitive Psychology and the Neurosciences.

These assumptions allow us to explore how the approach to information literacy is built in two complementary moments or periods: (1) a period that is internal or inherent to Information Science; and (2) and a period that is external to Information Science or interactive with other approaches. In the first period it is important to understand that which can be specific to Information Science. To this end, it is urgent to highlight the following statement from a recently published note on information literacy: based on this wider spectrum, in Information Science it is convenient to work with the concept of information literacy to refer to the competences and selective and synthetic ability to search for and use information. Determine the type of learned competences, as well as the spontaneous or induced needs, during the learning process, in what concerns the search, reproduction/reference (citation), interiorization and communication of information (SILVA, 2006, p.153-154). It is also important to remember, as a key mission of Information Science, the study and determination of individuals in their various contexts, of their need for information, of their performance in terms of use and communication of information with a specific purpose, generating new information and creating new information needs; of their efficiency in considering the implications of their actions and the knowledge generated, concerning ethical, political, social and economical aspects, performing intelligent interventions (DUDZIAK, 2001); and, last, of their ability to independently learn during life, assuring a continuum of competences which interact with the social, professional and personal demands.

The scientific investigation of the above-mentioned aspects leads, inevitably, to degrees of demand and depth that imply a dialogue between Information Science and other scientific disciplines. Among these scientific disciplines, Psychology and

Pedagogy have a more relevant role, but we must also consider the Sociology of Education and Culture.

Thus, we have designed a new model that sustains and explains our research. Two key aspects have been integrated in the model: information literacy and information behavior. In all the literature dedicated to information literacy we did not find a model that explains this concept as a process. On the other hand, in the area of information behavior, the contribution of Tom Wilson (1999, 2000) is very important but requires a new approach where access to, the evaluation and communication of information should be integrated, an approach which projects its transversal dimension on to every aspect and situation of social life and not only on those where the subject/person interaction occurs, or in conventional services and/or technological information systems.

In Attachment 1, we present our methodological proposal. This model assumes that information skills are co-determined, at first, by environmental conditions and by human action, contextually and situational focused. This environment includes political, economic, legal, social and cultural factors. This situation cannot be changed by students but does influence them. For example, the creation of the EHEA has brought about changes in the university students' life but they cannot avoid this process. On the contrary, they must adapt to it. If an environment cannot be changed by students, the context becomes all the more pressing for them. Thus, we distinguish these two concepts. Environment refers to a generic framework where, within the reality of a country, broader international community or even a diffuse geographical-civilizacional sphere (such as the Western World), human and social life is contextually and structurally being developed, including the even more intense and extensive activity developed in cyberspace. The context is a more personal situation, not only in terms of family, but also in academic, psychological, educational terms and, in general, all matters directly related with students. Environment determines the context, and context is the way to understand the extension and characteristics of the environment, as well as of its particularities.

We believe that motivation defines information needs. Motivation will be determined by the way of life, aspirations, familial influence and other aspects that shape a student's context. In other words, a student's context influences information

needs. This reference is particularly important in our study. An IL program will never change the information behavior of students if they do not have an internal mechanism that facilitates a change in conduct. Thus, information needs determine the way in which student's access information. If a student has low aspirations the information resources used to satisfy his/her information needs will also be low. We also consider that in the Information Era students can satisfy information needs in different ways. Not only in a formal way (library, educational resources), but also in an informal way, using different media, undoubtedly the Internet, but also the radio, television, videogames and people (teachers, friends, family), among others.

When students access information a process of evaluation and selection is automatically activated. Obviously this process is influenced by situation, context and environment. If a student uses a restricted number of poor quality information resources, his/her perception about the need to evaluate information will be low. We can postulate that if the risk of the use of information is high, the need to evaluate information and the variety and quantity of indicators is also high. The result of this process is the satisfaction or non satisfaction of the student. If he/she is satisfied, the information will be used and communicated in any format and for any purpose. Consequently, a certain use of information leads to a new reality and, thus, to new expectations and new questions, and finally new information needs appear. In this process, the usual situation is that the student uses a formal channel to interpret and access information. This formal channel is represented by the education system, that is, teachers and an academic or school library. But, what happens when the student is not satisfied with the information results?

First, the information is not used; second, the information cycle is subverted because a frustrated process leads to a weak formulation of an information need. In this case, students reject formal channels and start to use informal methods, such as Google.

3 PRACTICAL APPROACH

With this theoretical basis we have planning and carry out our research. First, we identified our population and research's sample. For this we applied following criteria:

- It is necessary to investigate the same geographical area (mostly city) for high school and university;
- The Portuguese selected cities are: Porto, Vila Real, Bragança, Covilhã, Castelo-Branco, Coimbra, Lisboa, Évora, and Faro(see attach 2)
- The selected regions reflect different socioeconomic situations;
- We try to be present north, centre and south of the country and we also combined littoral and countryside area;
- The sample includes students from the last year of high school education (12th grade) as well as university students (of the 2nd year). The idea is, at this moment, to compare the skills in two different moments: prior to the university and during the university period;
- We have selected 18 high schools according a national ranking (published in the "Student Guide" of the national newspaper Expresso, 3rd of November 2007). We chosen two schools by city, the best and worse one (when possible);
- We applied the survey to all the 12th grade students in order to cover all the existing areas and have the participation of a reasonable number of students;
- In higher education, we differentiated between polytechnic and universities students because we considered that there is going to be different levels of information literacy;
- The selected Universities are: University of Porto, University of Trás-os-Montes e Alto Douro, University of Coimbra, University of Beira Interior, University of Évora, University of Lisboa / Universidade Nova de Lisboa / Universidade Técnica de Lisboa and University of Algarve;
- In all this universities we selected the same degrees: Psychology, Civil Engineering, Biochemistry, Architecture, Administration, Languages and

Literatures;

- In polytechnic area we chosen Instituto Politécnico do Porto, Instituto Politécnico de Bragança, Instituto Politécnico de Castelo Branco, Instituto Politécnico de Coimbra and Instituto Politécnico de Lisboa;

- In this case, we have selected the following careers: Civil Engineer, Administration and Nursing;

- In all segments we apply the survey to all the students in order to consider, in almost cases, a minimal number of 50 students.

The research method that has been applied is divided in two approaches: qualitative and quantitative. The qualitative research (interview to the focus groups) permitted to obtain valued indications about the information behavior, expectative, needs and the use of information. The indicators obtained in qualitative research were used to design the model of the questionnaires.

We retrieved and consult the most important literature on information literacy. With this information we elaborated a grill whit the main concepts, models and indicators. Based on the principal models we designed a mix of items that will integrate the script of the interview. The interview was applied to a reduced number of students of high school and university at Porto city, in January 2008.

This interview, in a total of 41 questions, was divided in four main groups: Needs; Research (and evaluation of the research); Use (and evaluation of the results and of their application); Ethics. It was applied to three focus groups: two in the 12th grade of high school of the secondary school; and one of the 2nd year of the higher education level. One of the groups of the secondary was composed by 9 students of the 12th grade of Escola Secundária Rodrigues de Freitas, from Language and Literatures and of Sciences and Technologies areas. The other group was composed by 8 students of the 12th grade of Escola Aurélia of Sousa, from Arts area. The university focus group was integrated by 8 students of the 2nd year of the degree course in Sociology of Faculty of Arts of the University of Porto.

With the analysis of the information results of qualitative phase we design a draft of a questionnaire. This draft was discussed inside the *eLit.pt* research team. Then we initiated, at April 2008, the quantitative phase. This period started with a pilot stage. The survey was carried on a group of 28 students from 12th grade of

Escola Secundária Rodrigues de Freitas. In university, the questionnaire was tested in 19 students of Information Science of Faculty of Arts of University of Porto. The obtained answers were introduced in the statistical software named SPSS, version 15.0, and were subject of a descriptive analysis.

With the pilot stage analysis results, the *eLit.pt* group discussed changes and a new proposal for the questionnaire emerged. On May 2008, survey was initiated with the final version integrating 54 questions. It has four kinds of questions. There are:

- Basic group: Included familiar and scholar context. We define context as a space where the students develop his/her information behavior structure. Where they configure a way to face to the information literacy.
- Functional group: Integrated by mediation role of institution as library and school.
- Transversal group: Included all the question relation with the way that students mixer and use diverse information. For example: information access, information evaluation and use.
- Introspective group: Internal mechanism (motivation) linked with information need.

We present here the results of the first results obtained from the survey applied in May, June, September and October 2008. The sample is integrated by 1624 students of institutions of Porto, Vila Real, Bragança, Coimbra, Covilhã, Castelo Branco and Lisbon. Of these, 1242 are students of the higher education, while the remaining ones 346 are from high school. We analyzed results in SPSS 15.0

When we analyzed surveys first results we can detect that information literacy level in high school and university's students is almost the same but certainly in some indicators universities students have best results. In our research we can confirm some ideas or hypotheses. Some of them are:

a) Young generation have a very high access to information technology infrastructure. 64% of high school and 72,6% of universities students have 1 or 2 computers at home. In both, the 90% have internet connection at home. Almost 100% of both segment manifested to get net access at school/university.

b) Young people used frequently Internet and they prefer access to it from home. This information connects with results obtained when they are question about place where they do home work.

c) In this sense we confirm that students are using general resources, we mean not qualified resource as virtual library. If we can explain this situation with the absence o presence of ICT training we can verify that this variable has not relationship. The values in two segments are different, while 97,1%of high school' students manifested to get training in school on technology , only the 52,3% of university's students are this kind of instruction. But information behavior is the same.

d) Leisure is the major motivation for use information resources. We can confirm that Youtube and Messenger have a very high uses in our sample.

e) Our investigation shows that students have a high number of homework per year. Then, 76,8% of high school make 2-4/year while 73,2% of universities have 2-6 one/year. But the question is: what kind of resource is using them for prepare their homework?

f) We can answer that Wikipedia is a very demanded resources use frequently or very frequently by 56 % of high school students and by 54,5 % universities students. Also teacher note are very frequently use by 68,9% and 79,7% respectively. But digital library is almost never used. Only 14.2% of universities and 3,6% of high school manifested uses it. Similar values appear for library web site use.

g) In connection with this idea, we confirm that library use is low. At least low that we hope. It is particular worrying for public library. To confirm this we present this data. A 85,7% of higher school students and a 82,3% of universities students declares that never o rarely use it.

h) About school and academic library we detected different behavior between our two segments. First difference is that while 59,1 % of the students of high school indicates that never or rarely use the school library, this percentage in university student descends to 23,8 % and almost 50 % declares to come to the university library frequently. Second,

university students made a better use of the library resources of than another segment. This way while 88.6 % of the students of high school indicate not to use the OPAC near 30 % of the university students shows use this one with certain frequency. Something similar happens with the use of the databases and the use of the documents of free access. Third, it is necessary to emphasize that the values in two segments are not excellent, but near 90 % of the students of high school and of 80 % of the university students indicate that they not have difficulties at the moment of acceding to the resources of the library.

The eLit.pt project will be finish on November 2009. We cannot to express final and definite conclusion about our research. Anyway we can identified some trends, such as, motivation determine information behavior, information literacy in university's students is better that high school students and even though these results refer to Portugal, we cannot talk about an isolated and individual situation because, although considering different contexts, other papers and research have shown similar results and it will be necessary develop similar projects in other countries, namely in the European area.

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Places where students make their school works
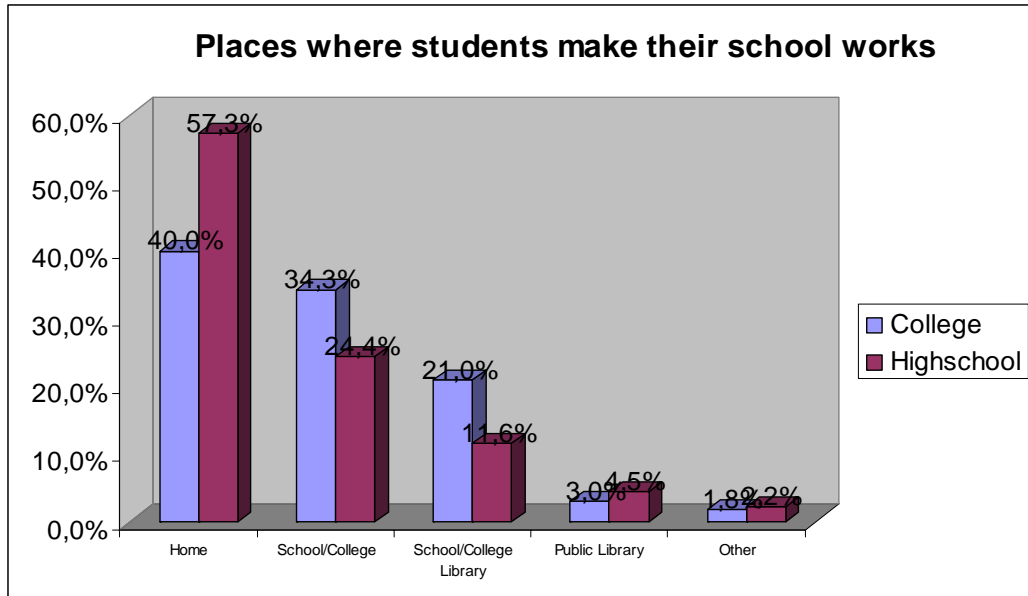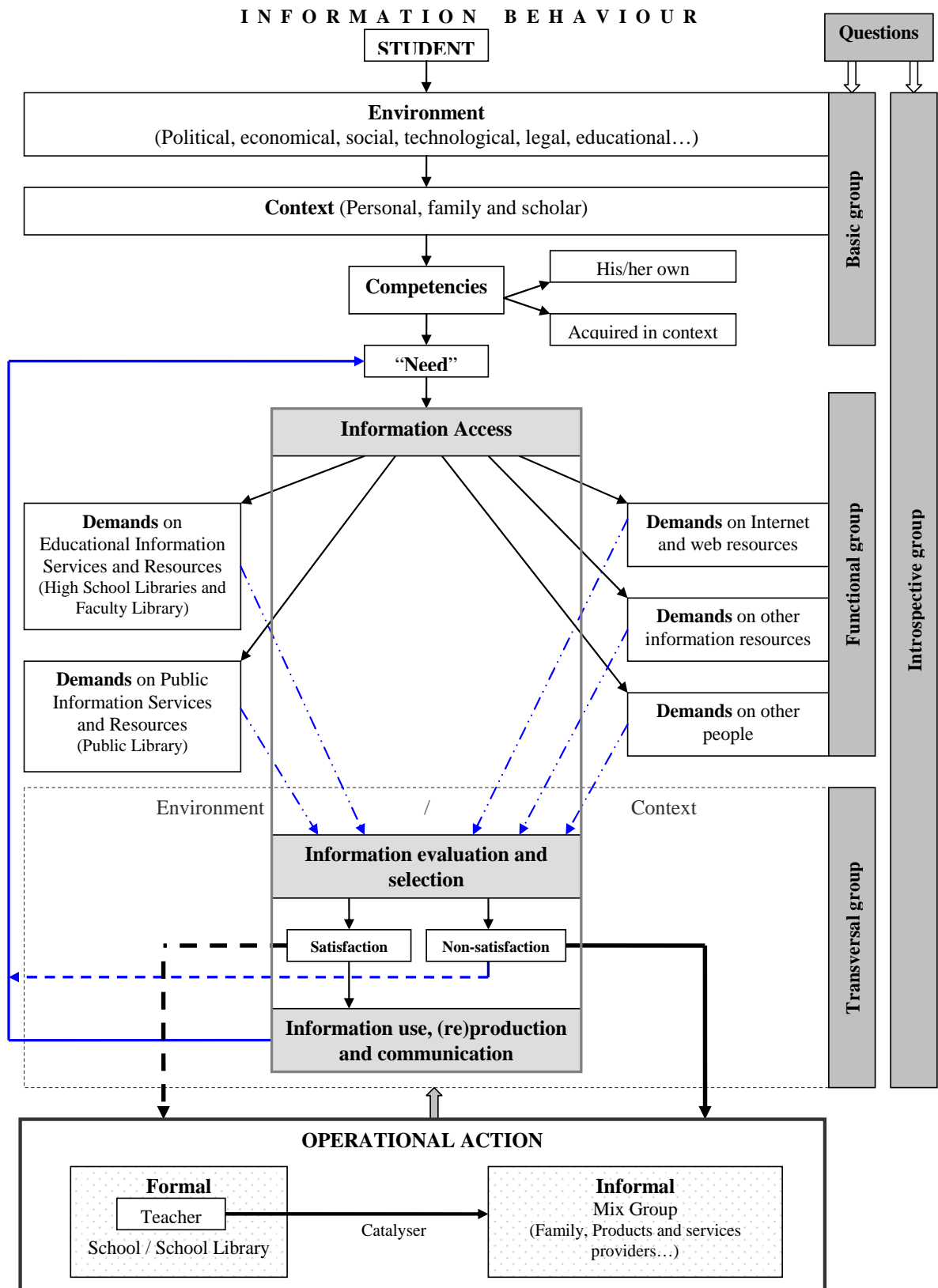

Graphic 1: Places where Students Make their School Works.
Source: Elaborate for authors.

Search engines use: very frequent
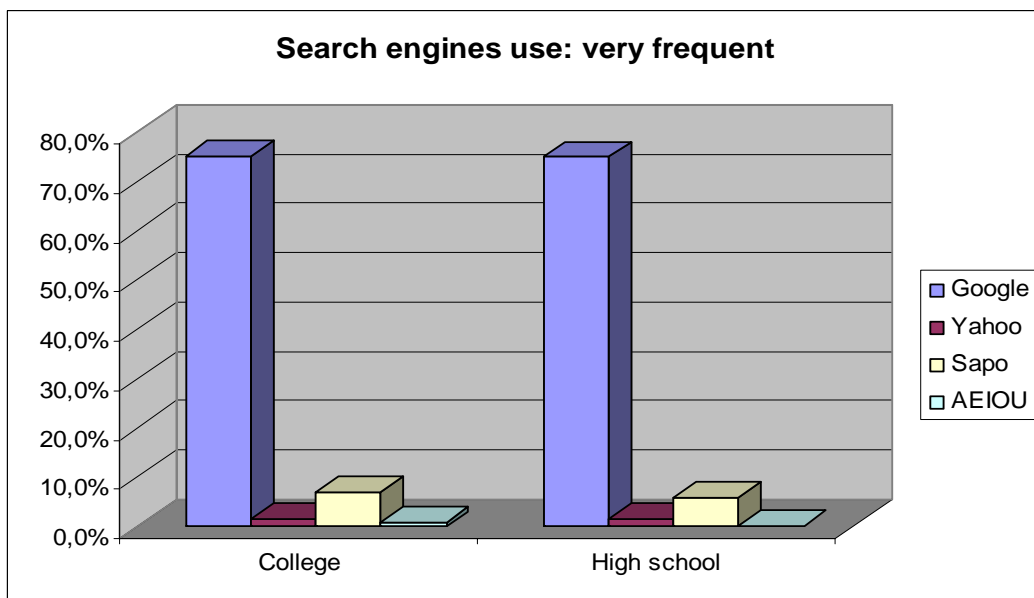
Graphic 2: Search Engines Very Frequent Use.
Source: Elaborate for authors.

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ATTACHMENT 2
eLIT MODEL

I N F O R M A T I O N   B E H A V I O U R

STUDENT

Questions

Environment
(Political, economical, social, technological, legal, educational…)

Basic group

Context (Personal, family and scholar)

Competencies

His/her own

Acquired in context

"**Need**"

Information Access

Demands on Educational Information Services and Resources (High School Libraries and Faculty Library)

Demands on Internet and web resources

Demands on other information resources

Demands on Public Information Services and Resources (Public Library)

Demands on other people

Functional group

Introspective group

Environment   /   Context

Information evaluation and selection

Transversal group

Satisfaction   **Non-satisfaction**

Information use, (re)production and communication

OPERATIONAL ACTION

Formal
Teacher
School / School Library

Informal
Mix Group
(Family, Products and services providers…)

Catalyser

ANNEX 1
PORTUGAL REGIONS INVOLVED IN THE RESEARCH

Mapa dos Distritos e Regiões Autónomas
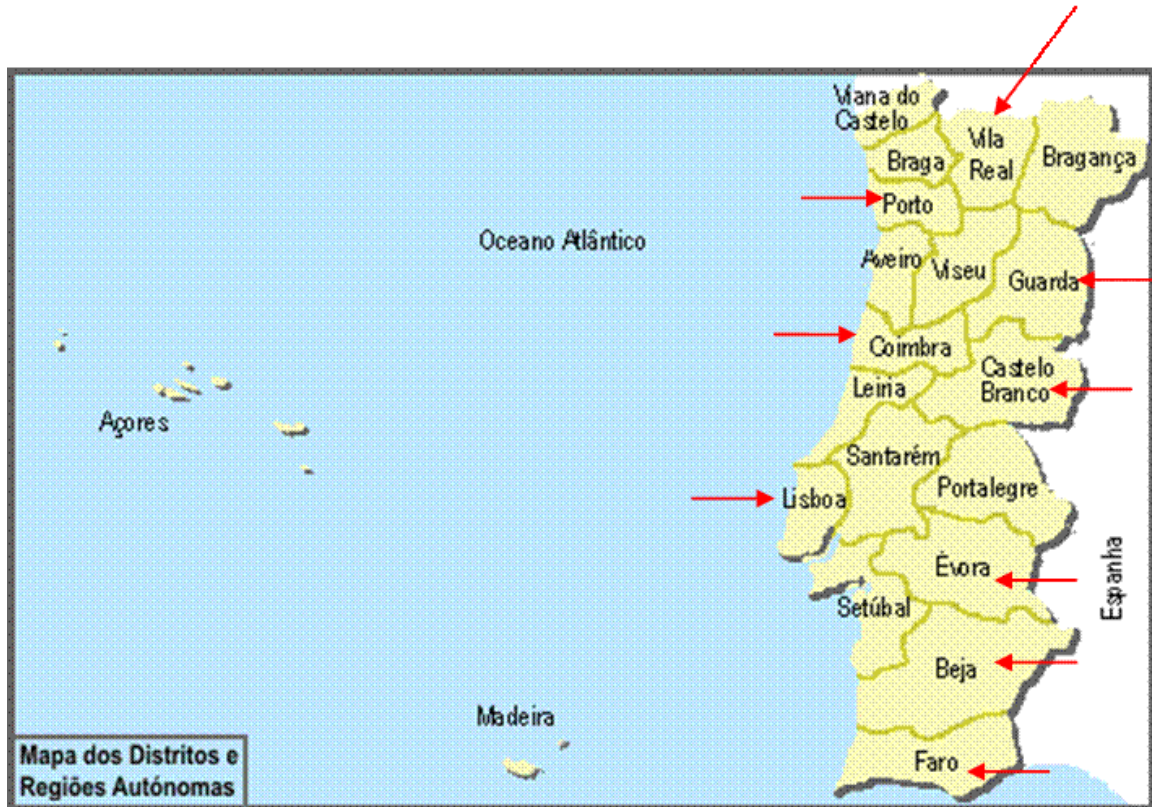
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