How to effectively use information in digital environment?

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ABSTRACT
The never-ceasing flow of information made available by digital environment compels us to a reflection on people's informational behaviour. To confront the reasons that lead them to the search of information, as well as the ways in which they access, select and use it in digital environment, are concerns to be held while trying to develop strategies aiming the profitability of the information use in this environment. So, in this article we will try to present some strategies to the effective use of information in digital environment, such as, for example, the investment in training as well as in Web pages quality evaluation.

KEYWORDS: Information Society, Informational Behaviour, Training, Web pages evaluation grids.

1. Effective use of information in digital environment: why and what for? (Introductory note)

Understanding the Information Society as a stage of social development, characterized by its members' (citizens, companies and Public Administration) ability to obtaining and sharing any information, immediately, from anywhere and in the most adequate way, is also to understand that the new technologies, the Internet outstanding, gave place to a new emerging paradigm: **knowledge is considered to be the fundamental resource of an organization**, since it is the new source of wealth. Nowadays, and from now on, success is directly related to information and to the **amount of information a citizen holds**, **as well as his ability to use it**, turning it into knowledge.

This system is based upon **two paradigms** for the organizations' success **– the digital** and **the emerging knowledge –**, **giving origin to behavioural transformations on the subjects' relationship with first instance information and with knowledge**. Presently, the citizen is actually both its receiver and its producer. In fact, as a result of this social system and of its enforcing paradigms, a system based upon **APP – Access, Production and Publication –** is out-coming, by its turn giving way to the emergent **C generation**, of **C**ontent, **C**ooperation and **C**onnectivity. The **quantitative growth of information flows** is thus undeniable, but is this quantitative growth being sided by a proportional qualitative growth of the information becoming available in digital environment? Concurrently, are the **users** of information in digital environment empowered with **informational abilities** and **enough knowledge**, in order to **use, capitalize and increase** information in this environment?

We consider these questions to be transversal to all reality under the aegis of Information Society. Consequently, it is up to all information professionals to reflect upon, discuss and find strategies that may lead them to improve and render profitable the use of information in digital environment.

2. Effective use of information in digital environment: one problem, two approaching perspectives.

The problem of the use of information in digital environment may be approached in two different ways. On one hand, through **acknowledging and studying the ways in which the user accesses, selects and uses scientific information**, here referring to the information arising and under the responsibility of documentation centres[i]. On the other hand, the problem may be approached through **questioning the informational behaviour but including access, selection and use of all information**, regardless of its origin and/or responsibility, being either documental or audiovisual, advertiser, more complete or more superficial.

In fact, the second approach seems to be more interesting, since we are living in an Information Society and what really matters is to **help the subject on the acquiring of informational skills and competences** allowing him to **surgically access** to the information flow available through technologies. We believe that an approach centred only on informational Behaviour, on the so-called organized and scientific information, will result on the common citizen's lack on developing solutions/strategies to increase the access, selection and use of information. We thus summon the need to think, reflect and develop a plan of action that profits the informational behaviour of the subjects who are daily confronted both with the information and with the need to manage it.

3. There may be no solutions, but action strategies are possible…

In this sense, we believe that the investment on the training process, together with the application of evaluation grids on informative quality available on Web pages, duly adjusted to different learning contexts, may become a successful way to approaching and giving answers to the problems arisen by the use of information in digital environment.

We would like to point out the importance, for both processes, of permanently minding the subjects' **informational behaviour profile**, since it becomes absolutely fundamental in order to create possible solutions able to increase the use of information in this environment.

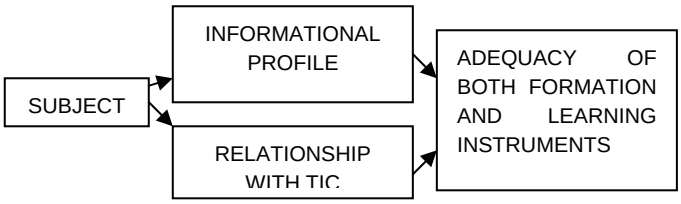
According to **Tom Wilson**, confronting the need, the goal, the information communicability, the cognitive development and the subject's fitting into an organization or social system, are factors that will allow developing more effective strategies on information use in digital environment, centred on the subject's profile. And the informational behaviour is undoubtedly and intimately related to the ways in which information is used in this environment, with more or less efficiency.

On the other hand, relating **informational behaviour** with the relationship and usability

the subject maintains with technologies is another strategy for the training processes to produce the desired goals.

According to Leavitt[ii], the **relationship** between **information needs** and **information technologies runs in circles**, since it is through technology that the information becomes available, forcing the user to be acquainted with different information search methods and to adjust them to the technology in order to satisfy his needs. But, accessorily, information, growing need for information and market competition force technology to progressively become adjusted to the user, as well as to his searching methods.

This means that, to achieve an effective use of information in digital environment, we believed that it is necessary to develop the following process: first, to depict the informational behaviour; then, to standardize the **relationship with information technologies**, since if there is no knowledge and **safety** on the "digital literacy"[iii] level, the development of information abilities and the consequent use of information in this environment will be compromised.



Pict. 1

From the analysis of the informational profile and its relationship with ICT, we have come to consider two possible strategies for the profit of the use of information in digital environment: the **investment on training**, and the **use of already existing grids** for the evaluation of the electronic resources' quality, namely on the teaching systems curricula, not only on higher education but also applied to the lower and more elementary teaching levels, in case we aim to educate the future generations for the Information Society and for the correct and efficient use of the World Wile Web.

Concerning **training,** the **development of national and/or trans-national projects** is considered relevant, in order to both discuss this problem and attempt to **create training models for qualitative use of information in digital environment**. We are assuming that, from the discussion and the sharing of experiences between partners, the main problems may be listed, but we are also considering the opportunities that the creation of such a training model on this domain may benefit of.

To think of a common training model implies a **deep pre and post training study**, with constant **share** of data between partners. We thus have tried to develop a few important topics for this model's development.

The success of the training may be closely related to the degree of the **student's former knowledge**. In this sense, it is a fundamental task for the success of the training to previously, and in first instance, define the **student's profile** concerning his relationship with Internet use, as well as with information in digital environment. According to C. Holscher and G. Strube[iv] this characterization should go further, also trying to understand the relationship between his **general knowledge** and his **informational behaviour**. The mentioned authors consider the possibility of pre-defining four students' profiles. Students:

a) With **little** research **experience** and **little** variety on the different matters of knowledge;
b) With **little** research **experience** but with a **wide** and varied range of knowledge on different matters;
c) With **some** research experience;
d) **Expert** on Web searching techniques.

In fact, the degree of general knowledge may be an important factor for the success of navigation and use of information, because the more general knowledge an individual has, the more easily he or she will use different browsers and data bases, since a richer vocabulary range will allow him or her, for starts, to find the best expressions to operationalize the search. It will be the formation's job to grant the techniques for the increase of the searching instruments, so the student may access and effectively use the information. The pertinence and the importance of this survey prior to the creation of the training model are thus justified.

For the survey there may be recourse to the application of a **behavioural formulary**, developing questions with controlled answers from which the **learning needs** of the student may be inferred, and, at the same time, the student's **sensibility and preparation** on this domain may be shown. There may also be recourse to an interview, allowing the student, in a more free, deep and spontaneous way, to reveal his experiences, his relationships and his learning expectations, as well as his information research options, ways and mechanisms in digital environment developed until then. That is, through the interview, the teacher is able to understand the existing relationship between knowledge, needs and strategies used up to that moment for searching and using information in this environment, as well as the motivations that

led the student into entering such a learning/teaching process. Still within the strategies for surveying the needs and recognition of informational behaviour, **tests** are detached, consisting on the execution of **simple tasks** with recourse to the Web: the student is presented with a couple of questions and, with no guidance, is asked to resolve them recurring to the **use of the Internet**.
Either making use of one of these strategies, or of all of them, appropriately combined, the important are the results gathered, since this whole process has for final goal the creation of a training model. Its creation is obviously and closely related to the teachers' experience, this being the reason why, previously, they will be able to define some kind of a lay-out of the future model, attending to such topics as:

- ⇒ Knowledge and rentabilization of different instruments for accessing and recovering information;
- ⇒ Strategies for straining information;
- ⇒ Steps on an information research process;
- ⇒ Recognition of the information quality and of the electronic resources;
- ⇒ Civic education for information and electronic resources use.

However, the training success is not exclusively based upon this pre-definition, closely associated to a **"work for"**, but also and mainly to a **"work with"**. This **"working with"** implies that the student must know, be involved with and rendered responsible for the definition of the learning objectives, in order to achieve a higher level of satisfaction, since the creation of the model is set upon a product adapted to his needs and to his profile.
We must still add that the success of this strategy is intimately related to the formation's **evaluation process**. In this training context, evaluation must be held on a continuous basis, regularly inferring the evolution of the student's informational behaviour, and, prior to the end of the training, there must take place the **evaluation of the teacher** and of the learning expectations, *versus* what was actually learned by the students.
Concerning continuous evaluation, some authors consider of importance to focus on some behaviours developed by the students, namely on what touches:
- The first behaviour when accomplishing a task on the Internet;
- The ways in which browsers are being used;
- The time dedicated to Web pages;
- The reflection on the quality and relevancy of the information found.

If this whole process is integrated on a partnership project, the results may be really surprising and profitable, since each stage is to be analysed, discussed and studied, and the creation of a single training model will be the culminating point. The added value of this kind of approach for creating a training model is the fact that, with this structure, **it becomes possible to infer and test common strategies for the increase of the use of information in digital environment in different realities, national and/or from abroad**. From the crossing of all these applications may arise a transversal model, which will become a precious contribution for the fight against the problem of organization and effective use of both information and electronic resources.
In fact, we consider that, nowadays, the problem is not as much centred upon accessing technologies or using the computer, as it is on the ways in which the citizen accesses and uses electronic resources, turning necessary to define and develop strategies that will guide and support the informational behaviour.
The appliance of **electronic resources' quality evaluation grids** figures to be a fairly simple strategy, since there already exist the most various grids, both of national and foreign creation (from which we detach the *Evaluation Criteria from New Mexico State University Library*[v], or the *Evaluation Internet Resources by Karen Lutgens from Illinois State*[vi] or the *Instrumento de Avaliação Descritiva e Compreensiva de Recursos Educativos Digitais [Instrument for Descriptive and Comprehensive Evaluation of Digital Educational Resources]* created by the SACAUSEF project[vii], from the Portuguese Catholic University), which surpass by their excellency, revealing themselves as important **guiding instruments** for the qualitative use of resources and information in digital environment.
After a reading of the different grids, it becomes clear they all share, in deeper or more superficial ways, the same evaluation criteria. So, we herewith present a synthesis of the criteria common to all the analysed grids. The following are electronic resources' quality evaluation criteria:

1. Authority;
2. Usability;
3. Objectivity;
4. Covering;
5. Documentation;
6. Functionality.

On what concerns **authority**, it is assumed that it is possible to **identify** information about the site's **author**, its **responsible**, one or more of its **sponsors**. It is also assumed that there are **links** for the author's, the responsible and the sponsors' profiles, in case they all exist. What this criterion demands is the easy identification of the origin and responsibility for the Web page.

As for the **usability** criterion, it refers to **reckoning the activity, frequency, strength and suitability** with which the "project" is maintained. That is, it is **important** for the internaut to know when the last publications took place, and when was the last time the page was checked and/or corrected and updated.

The criterion **objectivity** falls upon **pertinence, quality and scientific strictness** of the available information, the **independency** of the contents also being important to infer. To mind the **amount of advertisement** existing on the page also figures as an important item on the analysis of the objectivity level.

In many ways related to the objectivity is the **covering** criterion, since **both** of them regard content issues. However, the **covering** criterion is **focused** on and aims to analyse the **thematic comprehensiveness of the page**, namely the **kind of information**, for example the exclusiveness of the contents, or the ways in which the information is made available, for example in more superficial or more profound terms.

The **documentation** criterion is quite valuable, for its existence may be considered one of the major responsible for the arising on the internaut of safety and trust feelings regarding the contents, since this criterion foresees the identification of the **bibliography and/or resources used** while elaborating the contents, as well as **explanations** given by the author on the orientation and selection of the resources used for its elaboration

Last, but not least, the **functionality** criterion. This criterion is attached to all **functional issues of the page**, such as its **navigability**, its **organization** and the display of the contents; the easy recognition of the ***target*** for which the page is directed; the included **links' operationality** (this item being closely related to the Usability, since inactive links may stand for lack of permanent updates on the page); the possibility to be **internally researchable**. All of these issues are included on the functionality criterion and are rapidly detectable by the Internaut on the first contact with the page. Unlike the **objectivity**, the **functionality** criterion is one of the clearest to infer, the Internaut often proceeding to this first evaluation in an almost natural way.

Is has been observed that the **conjugation** and **internalisation** of all these criteria first lead to the **recognition** of the information's **quality** in digital environment, and second to the **management of the information**, turning the **subject able** to access, select and **surgically** use the information flow in this environment, thus enjoying the best technology may offer Mankind.

However, in order for the criteria to echo and produce the effect they were planned for, a very strong **diffusion campaign** will be necessary, together with their **employ on scholar curricula**. In fact, the internalisation of the resources and of the Web information's quality criteria should be **progressively integrated**, beginning in the first school years and being developed throughout the whole learning cycle. We must then develop a system of the type **eye coach**, meaning that **what seems strange on a first reading of an evaluation grid** will turn into an **inherent process for the subject** on the moment he navigates and makes research on the Web. From **tools**, the grids must turn into **environments.**

The **eye coach** system tries to contribute for that transformation, and should be based upon the **training to teach coaches**, meaning Information Professionals and Education Professionals. This training should come as a priority for the Education Ministry, with all the professionals mentioned being motivated to participate in it. The training will necessarily have to have **shades, respecting the target it is being directed for**, more comprehensive for Information Professionals, but sector-based, according to the teaching cycle, for Education Professionals. This because while the first are going to be the general citizens coaches, the latter will be students' coaches, and so their learning process must be based upon different guidelines, which will have to be well studied, preferably minding and relating learning cognitive processes in different youth ages, with the adequacy of the contents included on the evaluation grids to be taught on each learning moment.

In this sense, we evoke the importance of governmental measures that would legally frame this question, developing action strategies based upon the **eye coach** system. Taking advantage of all the work that has been developed towards the recognition of information's quality in digital environment, namely the evaluation grids, measures for qualitative use of resources and information in this environment could be rapidly defined.

4. Final Notes.

Obviously, other strategies could have been pointed out, but we strongly believe that **training** will always end up being the basis for success when **implementing changes**. The relationship and the action the citizen maintains with the use of information in this environment must undoubtedly be changed, since, regardless of the utility and access easiness that characterize it, this environment also qualifies for the high level of informative noise and for the huge amount of irrelevant or inappropriate information. Therefore, it is also fundamental to **present different instruments** for the profiatbilization and increase of this new world. The specific reference basis, the multidisciplinary reference basis, the integral text basis, the editors' platforms, the portals, the browsers, the recommendation services and the integrating systems allow us to access and **use information in a more effective way**.

We thus come to the conclusion that the major goal of presenting these strategies is ultimately set upon securing access to the correct information, on the correct dose, since this is the way to an efficient use of information in digital environment, truly enjoying all the goodness technologies possess as to ease and generate social wealth. After all, this is one of the axioms of its creation and development

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