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# Web 2.1: Toward a Large and Qualitative Participation on the Web

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**Abstract**

This article presents the results of research done on Web 2.0 within the School of Information Sciences ESI. It aims to study the behavior of different academic actors who deal with information, among whom we cite teachers, students of masters and students of information sciences in Morocco, face to Web 2.0's services.

Firstly, it aims to evaluate the use and production of information in the context of Web 2.0. Then, it attempts to assess those rates, to identify and analyze the causes of eventual problems and obstacles that academic actors face. In fact, we intend to understand why information actors in the academic world use often Web 2.0's services but do rarely produce qualitative content.

To achieve the objectives set, we used the on-site survey method, which was based on an electronic questionnaire administered directly to our people via the Internet. We chose the electronic version of questionnaire in order to make an optimal use in terms of new technologies, to gain time and to reduce cost. Then, in order to deepen the understanding of the data collected, we complete the data collected by the questionnaire by an ongoing discussions with actors.

Finally, to overcome the problems already identified, we intend to propose the elements of a new version of the Web called Web 2.1 offering new concepts in order to encourage users to produce information of quality and make the Web more open to a larger community.

This version maintains the current contents of Web 2.0 and adds more value to it. Indeed, the content will be monitored, evaluated and validated before being published.

In order to target valuable information, the new version of Web 2.1 proposes to categorize users into three groups: users who just use the contents, producers who use and produce content, and validators who validate the content in order to target information that is validated and of good quality. Once the information is published, it must be well organized, well stored and archived or removed to avoid over-information.

**Keywords:** Web 2.1; production of information; quality of information; broad participation; questionnaire; information science.

## 1. Introduction

At the advent of the 21st century, the technological evolution has covered all areas of life and especially the two aspects of the concept of the Web: content and container. For the container level, the impact of the technological evolution is omnipresent in the daily personal and professional tasks. The technological evolution is more visible at three levels: the hardware (new types of mobile equipment), the software (open source movements) and communication (new types of wireless networks, such as: WiFi, WiMAX, 3G, 4g). Concerning the content level, we should note that the Internet becomes a remarkable source of ideas and resources for

professionals and amateurs. The Internet facilitates communication and experience exchange between users that is, thus, spread geographically at a low cost.

One of the fields which is most affected by these changes is that of the networks and more precisely the internet. In fact, thanks to technological development, the internet has become more rapid, more secure and mobile. The result is that the number of users increases infinitely. In addition, the decrease of the costs of network-communications as well as the actual price packages have increased access to the web at broadband, in whatever space and time.

We would then take, for example, the case of the number of Internet World, which is equal to 746,943 and which has increased by 10% compared to 2006 [4]. According to prospective studies, 22% of the world population, which means 1.5 billion Internet users, will be connected in 2011 [16]. Regarding specific countries, we would take China as the example of a new technological power that occupies the first place right now in technological evolution. In China, there were 253 million Internet users at the end of June 2008, which means an increase by 56.2% compared to 2007 [3]. Note that the phone is the Internet access tool which is the most used. In fact, China has 73.05 million "mobinautes" which means 28.9% of Internet users. Despite the advantages offered by the Internet, especially in terms of research tools, it remains unable to replace the contributions of the traditional methods of research and the advantages of direct contact between people.

In addition to this, since 2005, Web 2.0 or collaborative Web [22], proposed by Tim O'Reilly, presents a new vision of the Web which no longer consider the user as a consumer of information but rather as a potential producer of content, and thus, a vital player in the power of Web 2.0 [15].

This basic change presents a real evolution of the Web that has increased the amount of information it contains and has allowed some degree of organization of its users in the form of communities participating in the production, communication, sharing and dissemination of content [21]. With this vision of the Web, users will increase the usefulness of the network and participate actively in the creation of a collective intelligence.

In this context, it is no longer required to purchase or install software. We can use thousands of on-line services on the net, some of which are available free of charge. We should note that content has also known a great evolution with new tools of Web 2.0. In fact, blogs, wikis or social networks attract a large number of Internet users around the world. In addition to these three classes of important tools, we can refer to the RSS feeds which allow users to follow all the news on a specific area and receive by e-mail or even by SMS the latest news from a Website. RSS feeds are a tool of free watch, there is no more need to acquire a license of software or to install them. Furthermore, these feeds save time, effort and cost.

Furthermore, information sciences are a remarkable area of research in the era of the knowledge society. This discipline plays a vital role in promoting new jobs such as knowledge management, the strategic watcher, the record manager… etc. Indeed, Le Coadic defines information sciences as "the science that studies the properties of information and processes of its construction, its communication and its use." [17]. Thus, this area of research builds up knowledge, studies the informational phenomena and establishes universal and necessary relations as well as scientific laws [17]. In Morocco, the 'Ecole des Sciences de l'Information' [10] (ESI), which was created in 1974 and depends on the High Planning Commission [15], is the only institution that is specialized in the training of information specialists, who master the management of libraries, archive centres or the Information in general. Besides, since its foundation and until 2008, the ESI has trained more than 2162 managers, of whom 1947 are information professionals and 215 are information specialists [11]. Working in the public sector, voluntary or private sector, those managers participate in the development of our country.

The present paper comes as a personal scientific contribution which aims to improve the quality of content available to Web 2.0's users, on the one hand, and to target a large participation of those users, on the other one. The first objective is to measure the rate of participation in the production of academic content in information Science in Morocco. The second aim of this paper is to identify the limits of Web 2.0 and finally, to propose

complementary concepts in order to target a Web 2.0 version that meets our fore mentioned objectives.

Therefore, we undertook an on-site survey method, which targets 142 people. It aims to measure the use and production of students (4th year of the normal cycle and those of the third cycle) candidates who prepare their research paper, and permanent teachers at the ESI. The choice of the 4th year students as targeted population is due to the fact that they take computing science courses, as opposed to lower-level students (1st, 2nd and 3rd years of the normal cycle) who have not yet had the privilege to attend these courses except in the form of few introductory courses. Concerning teachers, our survey was limited to permanent teachers. In fact, besides their work at the school, non-permanent teachers have a great part of work to do at their own institutions, and one cannot ask them extra-tasks since they are not often available on the spot.

Secondly, to achieve our objectives while facilitating the task, we found it useful to use the recent technological possibilities. For that, we started an investigation which was purely electronic and that lasted a month. It is called investigation of three zeros, which are: Zero paper (the survey was at 100% electronic), Zero dihram (the survey states that we have no payable resources) Zero error or loss of attachment (which implies that all the survey operations such as encryption of data entry or the counting were done automatically). Note that this survey is 100% confidential and that the processing of data was 100% automatic and anonymous.

In the following paragraph, we present the concepts and tools of Web 2.0; then in the third paragraph, we present the results of the survey that we conducted. We propose some principles and concepts for the development of a new version of the Web as a solution to actual problems of the Web, such as the quality of information and the non-participation of Internauts in the last paragraph. Finally, we will conclude our paper by a set of perspectives.

## 2. The Web 2.0

According to Tim O'Reilly, the Web 2.0 [22], [23] is considered as a new vision of the Web and it does no longer consider the user as a consumer of information, but rather as a producer who is a potential for the realization of the contents of the Web [15]. In this perspective, the quantity of information will increase significantly, which will offer the possibility of production, communication, sharing and dissemination of content by users [21]. Thus, a collective intelligence on the network will be created. According to Frederic Cavazza [2] "Web 2.0 is a marketing concept for some people, a vague term for others, Web 2.0 suffers from a lack of explanation of its impact."

According to Richard MacManus, "Web 2.0 is social, open and presents new interfaces and ways of searching and accessing information. It is an accessible platform for educators, media specialists and politicians. Each one has a personalized content [19]". Hubert Guillaud considers that Web 2.0 means a real phenomenon and qualitative evolution of methods of use and ownership of Web services based on technological change. Then, new forms of interactivity that place the user and its relations with others in the centre of the Internet emerge [13].Concretely, Web 2.0 is neither a revolution nor a technological break-up, but rather an evolution which attempts to resituate the user at the centre of networks. In comparison with Web 1.0, Web 2.1 is more interactive and a new mode of production, of sharing and diffusing information. In such a context, the internaut has the possibility of consuming and producing information while adapting an interface of his choice: language, colors, size of text and displayed information.

The Web 2.0 is not a standard. It is rather a series of use principles of existing technologies, but rather a series of principles for the use of existing technology [26]. Web 2.0 allows users to modify and renew the contents making it an area of information storage, which is not only flexible but rather in continuous movement. Taking into consideration that the amount of data has never been more important, the function of information dissemination is exploding with the advent of collaborative applications and platforms of blogs and wikis. According to Tim O'Reilly [22], this development concerns the following seven aspects:

### 2.1. The Web becomes a platform of services

Indeed, the Web is no longer a collection of Websites; it constitutes an online platform offering services to users. Web 2.0 is a set of design light models that make possible syndication and co-operation of data and services.

### 2.2. Internauts become producers of content and co-developers of applications

In this context, the user has become a producer of content. Furthermore, we move from the notion of software product to the notion of software services. It provides a subsequent interaction between the user and the author, on the one hand, and between the users themselves, on the other hand.

### 2.3. Services improve when the number of Internauts increases

Taking into consideration that Web 2.0's tools do not require any technical knowledge, authors are encouraged to participate actively in the production of content. Once the number of participants increases, the amount of information increases and, therefore, the service will be improved.

### 2.4. Data has a great value

We propose the free software movement as a solution to overcome limits or difficulties of proprietary software. This movement is based on the four freedoms that make the access and participation in the creation of free software license democratic.

### 2.5. Collaboration will create collective intelligence

The involvement of users, who produce and use on line content in the network will allow us to take benefit from their intelligence and then use it.

### 2.6. Create flexible and lightweight interfaces based on Web standards and protocols

There are several technologies, combined in Ajax, among which we cite:
- XHTML, CSS and JavaScript for the presentation of sites,
- DOM (Document Object Model) for dynamic and interactive manipulation of information,
- XML and XSLT for data manipulation.

### 2.7. The Web is more open to various hardware devices (PDA, GSM, …)

The Web 2 is a multiplatform. It is open to the use of any device other than the PC and especially those using mobile and wireless networks. The main tools of Web 2.0 are: blogs, wikis, social networks and RSS feeds, which are presented in the following table:

| Tools | Utility |
|---|---|
| Blogs | Regular publication of information; Comment Information |
| Wikis | Editing content<br>Collective Intelligence |
| Social networks | Creating online communities;<br>Sharing of files and publishing comments |
| RSS feeds | Regular information watch |

Table 1. Web 2.0's tools

### 2.8. Blogs

A blog or a Web log (Web log) is a personal online journal that allows a user to publish regular information or to comment news on a precise subject [8]. The blog constitutes a remarkable space of exchange for individual or collective writers, journalists, consultants or members of a company, retired experts, enthusiasts... This is a tool for collaborative communication [12]. The strengths blogs are the ease of use, the speed and the ease of publication, the freedom, the ability to interact, and the cost, which is very low and often free.

### 2.9. Wikis

A wiki is a Content Management System (CMS) for Web sites, making Web pages freely editable by all allowed visitors without technical difficulty [9]. Then, the user contributes to the creation of a collective property. It is a tool for collaborative work; it constitutes a real discussion space that offers the possibility to produce an organized and structured content with minimal constraints [6]. Among the advantages, we can cite: changing pages as the user want, archiving versions, managing simply and efficiently Web sites, working simultaneously and at a low cost.

### 2.10. Social networks

Social networks make it possible to create communities in a bottom-up manner and to connect the online community in the form of networks. These communities may have common goals or areas of common interest [18]. A social network (or human network) is a set of relationships between individuals or organizations linked together for social interaction (personal or professional links) [5]. Among the advantages offered by social networks, we can cite the organization of user communities in order to facilitate a large dissemination of information. These networks allow a quick reach of a wide audience including consumers. They allow also very precise targeting of ads and individuals.

### 2.11. RSS feeds

I RSS feeds or (Really Simple Syndication) [1] are standards that inform the user immediately of updated content of a Website or blog in one place through alerts. The user can read more of online news without being obliged to consult the Website. It is a simple and very effective way to be immediately alerted when news have just been updated. So the user can get daily updated, and it saves him time and effort of ongoing searches on the run information [20]. Among the advantages of RSS feeds, we can cite the fact that users can follow innovations in webs as well as daily news easily.

However, the Web has some limits which can be classified into three categories: some of them concern the users; others concern information, and finally those relating to financing and costs. Among the limits, we can cite for example the non-participation of the majority of Web 2.0's users, especially the specialized communities, to the production of content, with the exception of few producers. This participation is generally low and modest and does not interest all Internet users. The great amount of information makes users lost; in fact, they have difficulties to follow the news. Besides, we can cite the poor quality of information (a lot of duplication, unnecessary, not interesting or incorrect information) [25]. Note that this has several negative consequences such as the enormous loss of time and precision for relevant research. In addition, this information is wrong on several sites and does not respect in many cases copyright. Advertising companies fund Web 2.0. This situation is too risky with the current world economic crisis of losing its momentum. Thus, the Web 2.0 model is not a collaborative one; it has a commercial purpose rather than a social objective.

## 3. Study's results

### 3.1. Distribution of respondents by number

Before presenting the results of our survey that lasted one month, we should remember that our objective was to measure the rate of the use and production of content in Web 2.0. Our survey proposes a new version of Web 2.0, which aims to improve the quality of information and increase the population's participation. Our population is composed of 142 respondents, as presented below:

| Population | Population | Total number |
|---|---|---|
| **Students** | 4th year of normal cycle (CI) | 70 |
| | 1st year of third cycle (CIS) | 8 |
| | 2nd year of third cycle (CIS) | 13 |
| **Researching Students** | 35 | |
| **Teachers** | 16 | |
| **Total** | 142 | |

Table 2. Distribution of the surveyed population

Our survey targeted our entire population, which includes 142 members. 102 respondents replied; then the response rate is about 71.83%. Our investigation found that the youngest respondent is 21 years-old, while the oldest is 60 years. The distribution of age of our population shows that the respondents have much free time before reaching the retirement age, which is of 60 years for officers and 65 for teachers. To that end, we identified the vision of young students and active teachers, relatively young, and who are in need of a Website that meets their needs. These 102 respondents were divided as follows:

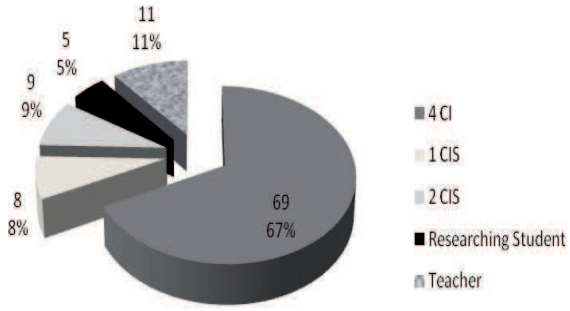


Figure 1. Distribution of respondents by type of population

The chart above shows that the number of respondents targeted on the second cycle (CI) (67%) is about twice of all respondents of the CIS, memorizing students and teachers (33%). Then, more than 2/3 of respondents have less than 25 years, which means that our population is young.

### 3.2. Distribution of respondents according to sex

We should note that here is certain disequilibrium between the sexes. In fact, 34% constitutes males (less than 1/3 of the population) and 68% are females as shown in the figure below:

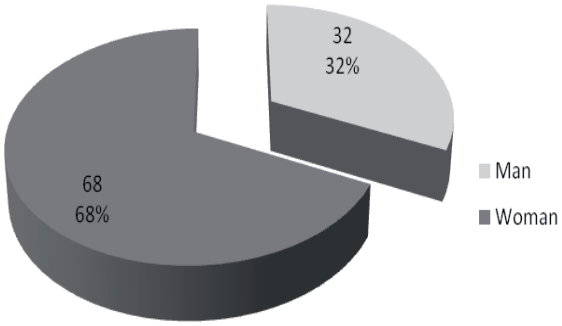


Figure 2. Distribution of respondents according to sex

Taking into consideration our results, it seems that women are more involved in the use and the production of content than men. Henceforth, a specific content that could be more relevant to women's needs and situations should be introduced to imply them more in this context. In this way, women could be given more value and consideration due to the fact that they constitute a cornerstone part in the production of online content, and so present a condition for the future of information.

### 3.3. Use and frequency of the Web 2.0 use

Only 3% of respondents do not know Web 2.0 while the rest, which is 97%, have already heard about it. We can deduce that Web 2.0 is a known concept to the majority of respondents, which will allow us to profit from their own opinions and experiences. The following figure shows how our respondents have been informed of the existence of Web 2.0.

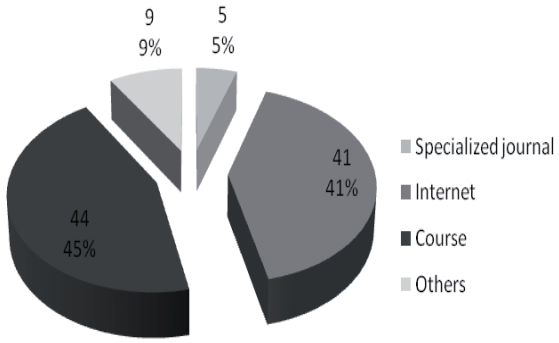


Figure 3. How the respondents have been informed about the existence of Web 2.0

We note that the courses and the Internet are the most important tools by which respondents have known about Web 2.0. Thus, courses should be revised and updated. Online content should be regularly controlled, validated and updated.

Concerning the use and production of content, we should note that there is a certain imbalance between users and producers of content. About the 2/3 of our population (67.67% of it) affirm that they make use of Web 2.0, while only 1/3, which means 32.33% of our population, said that they participated in the production of content. This statistics prove the law of 1/3, 2/3, 1/3. In fact, 1/3 of our population does not use the Web 2.0's services, 2 / 3 use those services and just 1/3 produces and participates. Note that that we have got a good result, but we would like the rate of producers and participants in the production of content to increase to 2/3 and that of the users who just consume online content to go up to 3/3.

The following table illustrates the frequency of use and participation in Web 2.0's services and tools:

| Tools of Web 2.0 | Use frequency | | | Rate of participation | | |
|---|---|---|---|---|---|---|
| | Often | Rarely | Never | High | Medium | Low |
| **Blogs** | 60 | 37 | 2 | 13 | 53 | 33 |
| **Wikis** | 47 | 40 | 12 | 11 | 38 | 50 |
| **Social network** | 60 | 22 | 17 | 30 | 38 | 31 |
| **RSS feeds** | 34 | 32 | 33 | 8 | 32 | 59 |

Table 3. Frequency of use and participation in Web 2.0 tools

We should note that blogs and social networks are the most used tools of the Web 2.0. Concerning the production of online content, respondents use blogs (medium rate) and RSS feeds (low rate). Social networks constitute the sites of production and participation. We can take as example: Facebook (53%) and Skyblog (42%). Moreover, to share videos, respondents use YouTube (24%) and Dailymotion (20%). For wikis, the free encyclopaedia Wikipedia occupies the first place (40%).

The low rate of production of contents and ideas proves that the content of Web 2.0 is very modest and very limited a part from few producers. Respondents who do not participate justify it by the lack of knowledge and training in this area, the lack of time, the fear of publishing added value content and finally the desire to preserve the privacy of people.

### 3.4. Types of content that is used and produced

Regarding the types of content and tools used and produced, we should note that texts occupy the first place, followed by images and then videos and audios. The rates of the use and production of content types are illustrated in the following table:

| Types | Use's rate | Production's rate |
|---|---|---|
| **Text** | 91,91% | 54,54 % |
| **Image** | 82,82% | 42,42% |
| **Audio** | 45,45% | 9,9%. |
| **Video** | 66,66% | 24,24% |

Table 4. Distribution of the use and participation to Web 2.0's content and tools by types

Our respondents use more text and images for their research, which are related to the scientific and academic information (courses, presentations, research work ...). Videos and audios occupy the second place. In fact, respondents affirm that they use videos and audios to complete the text and images content. Thus, we are face to a diversity of tools of education and training. Concerning production and content sharing, our respondents produce firstly texts and images in blogs and social networks. Then, in order to become famous, they publish videos and audio files.

### 3.5. Current opinion on the Web 2.0

When talking about information research on Web 2.0, opinions differ: 28.28% of respondents consider that Web 2.0's version is better than the Web 1.X, they justify their opinion by the fact that Web 2.0 is richer thanks to the collaboration of users, the sharing of ideas and content, and also the diversity if its tools. 66.66 % consider that a superficial change has been felt between Web 1.X and Web 2.0. 5.5 % think that Web 2.0 is not a good tool of search, once the information is not always reliable, but anyone can contribute without any control, as well. Therefore, Web 2.0 does not present an improvement on the research level but operates mainly on that of content. Consequently, Web 2.0 increases the content and quantity of information, though often at the expense of quality. Therefore, opinions are divided: those who find the right information by field are satisfied, but those who find poor quality information, and sometimes erroneous, claim and asserts that research is not successful. Other

respondents think that non evolution has been noted, which means that when doing research, we can find the right or the wrong information.

Regarding the degree of satisfaction of respondents of Web 2.0, 88.88% are satisfied while 11.11% are not satisfied. So the mass of content should be increased and the quality of information too. Concerning the advantages of Web 2.0, 91.91% said that it improves content sharing, 78.78% said that it has a beneficial impact at the dissemination and the creation of communities' level. 53.53% say that it strengthens education; 95.95% feel some movement in relation to Web 1.X at the level of simplicity, ease, quality and variety of content, information sharing, information dissemination, exchange of ideas, collaboration, interactivity offered by its tools. Note that 4.04% of our respondents do not feel any change.
Regarding the quality of information available on Web 2.0, the following table lists the different judgments about the quality of this information:

| Population | Number | Percentage (%) |
|---|---|---|
| Redundant | 42 | 42,42 |
| Disperse | 49 | 49,49 |
| Poorly sorted | 36 | 36,36 |
| Anonymous | 42 | 42,42 |
| Does not respect the copyrights | 40 | 40,4 |

Table 5. Distribution of respondents by their judgements of the Web 2.0 information quality

According to respondents, information available on Web 2.0 doesn't lacks criticism. In fact, Web 2.0 has many problems that need to be reviewed by the designers of the Web. In order to improve the information quality, our respondents suggest that this information should be evaluated and validated before being published, well organized, controlled and eliminated when it is necessary. They propose the creation of user guides and the regulation of trade on the Web 2.0. Regarding the limitation of Web 2.0, 59% of respondents affirm that there is a great need to improve the existing tools and their interfaces, 53% have expressed the need to deliver new services and 37% have said that Web 2.0 should be more open towards users. They tackle also the need for content-control, the users' training and guidance, as well as respect for privacy and copyright.

### 3.6. Opinion on the Web's future

The means that the respondents would like Web 2.0 to make available for them can be classified in two categories: tools and services. Concerning the former, respondents want them to be:

- Learning tools that are more targeted to users;
- Tools for checking the reliability of the information;
- Tools for the dissemination of selective information;
- Online personal databases.

Concerning the latter services, respondents wish:

- Services that meet the privacy of internet users;
- Services in Arabic and Amanzigh;
- Services of abstracts and automatic synthesis;
- Services of multilingual translation, which are more powerful.

## 4. Towards a new version of the Web

Based on the results of our investigation, and specifically the rate of use and production in the context of Web 2.0 (which is 2/3 for simple use of the content available on line and 1/3 for participation to content- production), we will present a new version of the Web. In fact, the survey gave us the opportunity to understand many facts related to the use of this new collaborative Web. Indeed, the majority of respondents is satisfied by Web 2.0 and feels a

certain evolution in relation to Web 1.x when talking about the simplicity of use, the ease of publication, the richness and diversity of content, the sharing and dissemination, the collaboration, the interactivity, the creation of communities and the diversity of tools.

However, our survey has demonstrated that the Web has made progress in term of the quantitative aspect of content. Consequently, users, who are satisfied by Web 2.0, are certainly the Internauts that do not or rarely produce content. Lazy people favor this situation, yet it is a limitation for this version of the Web. Based on the results of our survey, we can also classify the limits of Web 2.0 into two parts. The first one concerns the users, while the second concerns the information contained on the Web. The following table summarizes certain limits reported by respondents to our survey:

| Element | Problem |
|---|---|
| **User** | Low user implication |
| | Non participation |
| | Low participation |
| | Participation of amateurs |
| | Anonymous participation |
| | No difference between those who produce and those who consume |
| **Information** | Redundant |
| | Disperse |
| | Unstructured |
| | Poorly sorted |
| | Anonymous |
| | Does not respect the copyright |
| | Over-quantity of information |

Table 6. Limits of Web 2.0

To counteract these limits, we propose to introduce new concepts of a new version of the Web called Web 2.1, in which we will try to solve problems related to users and information. The version of the Web proposed has three objectives:

- Make available to Internauts good and qualitative information;
- Motivate and encourage more Internauts to participate and share their data;
- Expand the population of Internet users and producers of information and incite them to participate in the creation of content in Web 2.1.

For this reason, we propose to take into consideration the following concepts related to users and information.

### 4.1. Improvement related to users

Note that we should not consider all users on the Web equal. Based on the survey, we take as an example the case of young people under 25 years and who represent more than 2/3 of the population. Concerning the gender of the respondents, women represent 2/3 of the study population, while men represent the 1/3. Thus, the Web should offer personalized services that are in adequacy with the respondent's age and sex. Therefore, we must provide relevant content for youth and women in general. The following table gives the types of potential users of the Web:

| Types of users | |
|---|---|
| Male | Female |
| Young | Old |
| Child | Adult |
| Amateur | Expert |
| Person with general knowledge | Specialist |
| Researcher | Professional |
| Student | Teacher |

Table 7. Types of potential users of the Web

In addition to this, for the same type of user, no one can consider that:

- Those who produce and those who just use contents are equal;
- Those who produce a lot and those who produce less are equal;
- Those who produce the right information and those who produce the wrong information are at the same level.

According to the survey, non-participation is generally due to the lack of knowledge and training in this area, lack of time, and the desire to produce added value content as well as to preserve the intimacy of individuals. To that end, we propose, in this new version of the Web, to provide Internet users standardized and multilingual manuals on Web 2.1. Furthermore, free distance learning on the Web will permit them to have a better understanding of these principles.

In this new version of the Web, we propose the control of content and its validation before publication. We propose to teach and guide users to open more on the Web and to respect the intimate life of people and copyright.

For this purpose, we propose to classify users into three groups:

- Users who use content and services;
- Producers who produce and use content;
- The validators who validate this content.

For users, they will not have access to all Web services, such as some RSS feeds, articles on blogs and to the list of users of social networks. Furthermore, it will be prohibited to users to participate in the creation of the content of wikis.

For producers, they will have access to all services of the Web; whereas, for validators, they will manage the Web and have access to all Web services. They will be paid depending on advertising margins available on Websites to which they belong. Finally, we should note that the mechanism that makes the difference between those who participate and those who do not would encourage a large population that does not have access to all documents stored on Web 2.1.

### 4.2. Improvement related to the information

According to respondents, information on Web 2.0 has many limitations. Indeed, respondents were faced to many problems that need to be reviewed by the designers of the Web. The quality of information available on Web 2.0 is sometimes disperse, redundant, anonymous, poorly sorted and sometimes does not respect copyrights. To solve these problems, Information should be: monitored, evaluated and validated before being published, well organized, well sorted and archived or removed to permit to users to avoid the problem of over-information. The following table lists the steps and processes that must pass information to the Web for what is of good quality:

| **Function** | **Steps** | | | |
|---|---|---|---|---|
| **Identification** | Identify the information by an ISBN and the user who has produces it | | | |
| **Control** | Syntax | Semantics | Copyright | Relevance |
| **Validation** | Logic | Language | Correction | Structuring |
| **Publication** | Publish information that is validated by the validation committee | | | |
| **Updating** | Update the content by the validation committee every day | | | |
| **Elimination** | If the data is useless | | | |
| **Archiving** | If the data is always useful, it must be placed in appropriate databases | | | |

Table 8. Steps and processes by which information must pass before being available online

Users of Web 2.1 must have a unique identification on a specific site. They have a login and password to all the sites of Web 2.1. Each user is known and identified, and therefore, there will be no more possibility of anonymous content. Each user signs an electronic contract and then, he will be pursued if he does not respect the contract clauses. Besides, we consider that it is necessary to strengthen the control of the authenticity of the content and authors to

ensure a better quality of information. It would be interesting, also, to regulate trade on the Web and improve the integrity of the content, which is published. To finance this version of the Web, we must encourage advertising and electronic commerce. The process of creation of information Web 2.1 is illustrated in the following figure:

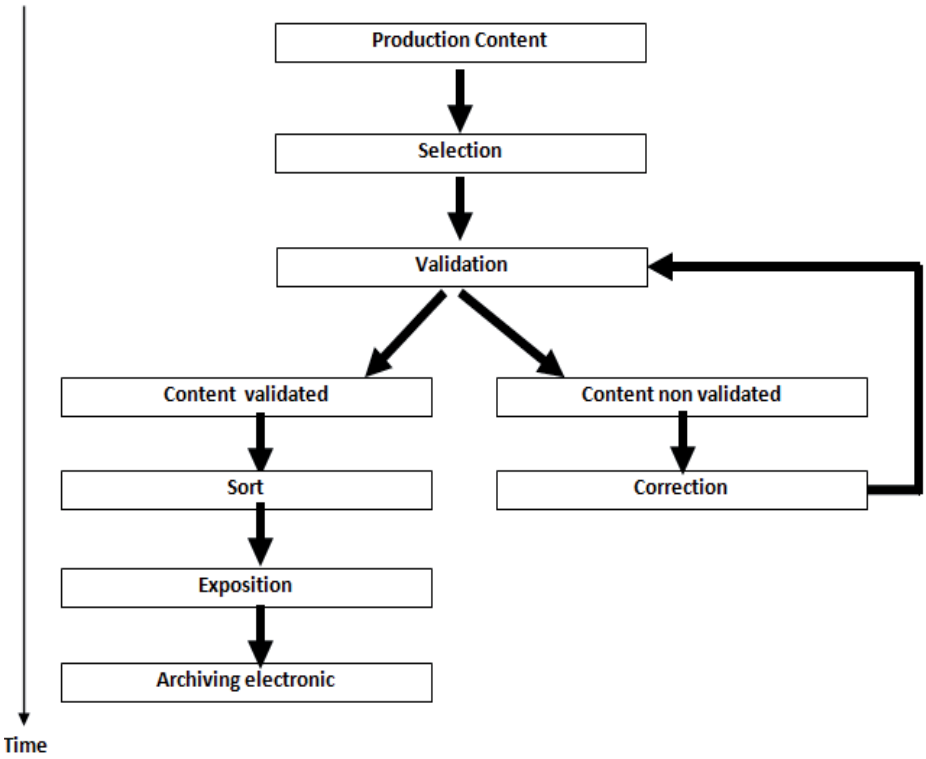


Figure 4. Process of publishing information on Web 2.1

The tools and services that respondents would like Web 2.0 to offer them can be classified as shown in the following table:

| Updating | Details |
|---|---|
| **Tools** | Relevant research tools that take into account the semantics and quality of information |
| | More learning tools targeted to users |
| | More tools related to the verification of the reliability of the information |
| | Tools for selective dissemination of information |
| | Databases of personal information online |
| **Services** | Services which respect the privacy of Internet users |
| | Multilingual services and especially in Arabic and Amazigh |
| | summary and automatic synthesis services |
| | More efficient services of translation |

Table 9. Desired amelioration of the Web by respondents

The tools and services are diverse and, with the great evolution of the Web, they will certainly be part of a new version of the Web. Considering these proposals, we can overcome the problems already identified in our investigation. Thus, users are encouraged to produce qualitative information and the Web is open to a larger community.

## 5. Conclusion

Despite the fact that the investigation conducted on Web 2.0, was limited to a purely academic population, the survey has allowed us to evaluate the current status of the use and production of academic information in Morocco in Web 2.0. In addition to this, identifying disequilibrium between the production and the use of content available on Web 2.0, the survey noted the various comments, suggestions and proposals of the respondents. Thanks to the present survey, we identified a set of problems that we have tried to overcome by making a differentiation between different actors in Web 2.0 and by adding the component of the validation of the information as a prerequisite for its publication

In this context, we propose some perspectives for the future of the Web:

- Create search engines that indicate the level of the information quality in order to identify information of poor quality;
- Create reference websites that indicate the original source of information in order to respect copyrights;
- Improve the identification of users with image recognition and fingerprint in order to limit anonymous production;
- Add the concept of online database;
- Pay producers and validators with virtual money in order to encourage qualitative production of content.

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