

Towards a participatory E-learning 2.0 based on the use of Vwiki tool

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ABSTRACT: The main objective of this article is to adapt the Vwiki, tool proposed by our research laboratory, as a solution to the submergence of obsolete, unstructured wikis with wrong contents that are spreading through the web. Thus is for the e-learning environment purpose. Due to the mechanism of the content validation by pairs, such as Wikipedia, and the dynamic evaluation by the community after the publication of the its content, the Vwiki is proposed as a collaborative educational tool 2.0, which is centered on the learner and supervised by the teacher.

For realizing a collaborative course, learners will create the collaborative contents, the teacher will play the role of the content validators, while the tutor will represent the monitoring committee of the publication and will be in charge of the course process publication from the creation of the information until its final disposal or archive.

In this context, we propose a collaborative strategy 2.0 to adopt as a tool for the E-learning. Thus will provide a formal and collaborative education project at lower costs that provides collaborative courses and takes advantage of not only the collective intelligence, but also of the community and content evaluation by the learners.

KEYWORDS: Web 2.0, Vwiki, learning, participation, collaboration.

1 INTRODUCTION

Since its appearance in 2005, Web 2.0 has suggested a new vision of the web that considers the user as a potential actor and producer of the web content rather than a simple consumer of information [7]-[8]. This fundamental change has significantly not only increased the range of information, but it has also facilitated the collaboration and the involvement practices as well. It has also enables users to produce, communicate, share information, and collaboratively edit online knowledge content [6]. In this context, the web has become a free platform of tools and services for publication, information sharing, collaboration and communication between users regardless of Geographic locations. It has also involved users in various fields such as education and collaborative learning. Due to its simplicity, openness and wide usage especially by the young people, Web 2.0 has provided a new wave of informal learning which is closed to a social network and where users interact, learn together and articulate around an area of interest. Furthermore, Web 2.0 can be used by learners to complement formal learning experiences [2]. This new educational approach reinforces the user's position and creates a dynamic community. It also enables migration from the transmissive and the unidirectional media to a community and

collective learning. The following figure reveals a symbolize the actors and tools involved in the informal e-learning by using Web 2.0 tools:

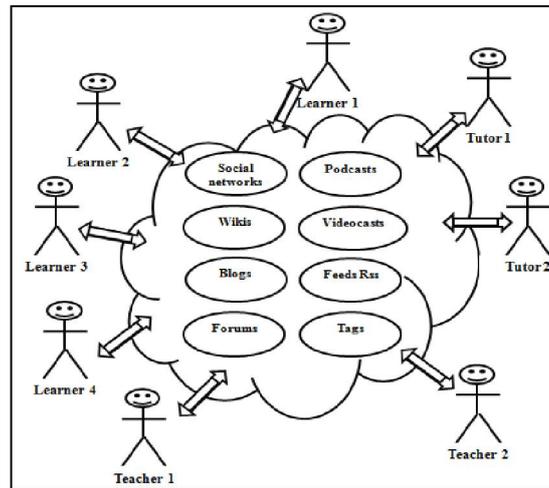


Fig. 1. The actors and tools involved in the informal e-learning using Web 2.0 tools

A closer look at Figure 1 shows that each actor uses one or more Web 2.0 tools to respond to a specific need of education; for example, the tutor can inform learners through a social network while the teacher may place his course materials (or a part of his course) in the class blog. He may also propose a collaborative project and publish the content on the wiki. In the following paragraph, we present the concept of E-learning 2.0. Then, in paragraph 3, we expose the elements of our approach to Vwiki before introducing the static validation and the dynamic content’s evaluation in the context of a collaborative educational content. In the last paragraph we present the strategy of E-learning which is adopted by using web 2.0 tools. We then present a general conclusion and providing some general recommendations and perspectives forward a set of perspectives to address these issues.

2 E-LEARNING 2.0

E- Learning or traditional distance teaching is a type of teaching supported by electronic features. This type of teaching comes not only from the broad diffusion of information through the networks, but it also comes from facilities of telecommunication in education as well. It defined by the American Society for Training & Development [Horton 2001] as the use of the Internet and digital technologies to support the active learning experience. It is based on the transmissive teaching approach using a learning platform LMS (Learning management system) or LCMS. Contrary to the approach focused on teachers, E-learning 2.0 is centered on learners and based on the user’s collaboration by using Web 2.0 tools to provide the educational content [10]. Moving to E-learning 2.0 offers not only greater interactivity and autonomy but it equally enhances involvement in the making and broadens the spectrum of engagement and collaboration between users. In other words, Web 2.0 provides powerful and good opportunities to the learner to create his/her content in where he/ she can exchange practices between and among the community and experts outside the boundaries of classrooms. The difference between E-Learning 2.0 and E-Learning 1.0 are shown in the following table:

Table 1. Difference between E-Learning 1.0 and E-Learning 2.0

E-Learning 1.0	E-Learning 2.0
PlatformLMSetLCMS	Web 2.0 tools
Based onteacher	Based on learner
TheTeacher produces	Theteacher validates
Learner is aspectator	Learner is aproducer
Exchange with theclass	Exchange with thecommunity

The new educational wave is interactive due to Web 2.0. More importantly, web 2.0 environment offers not only a simple and popular area, but it also provides polyvalent and open collaborative tools as well; it is based specially on the user engagement in a more participatory defined learning environment. The purpose is to provide a collaborative informal knowledge and put into practice a model of E-learning approach. Furthermore, the features of Web 2.0 technology will allow everyone to advance learning environments because they do not require specific knowledge or technical skills which will constantly facilities their spreading through all over word especially among younger generations. In this context, web 2.0 will enhance a real form of interaction and create collective learning environment centered on the learner. It will also redefine the role of teacher in the E-learning2.0 environments which is actually limited to supervising and supporting learners. The rapid transformation processes going on, raises critical questions regarding the improvement of classical distance learning and therefore enables migration from the transmissive learning in particular to a collective approach. Web 2.0 tools can be categorized into eight main types that can be used by one or more actors to support E- learning 2.0. The following table shows the role of web2.0 tools in the E- learning collaborative environment:

Table 2. Role of E-learning 2.0 tools

Social Tools	Role
Blogues	Publication of courses, pedagogical coaching
Wiki	Creation of Common documents
Forum	Exchange between learners and tutors
Social network	Communal Learning
Tags	Improving research by involving the learner
Feed RSS	Improving the dissemination by notifying the actor
Podcast	Learning by listening the audio files
Videocast	Learning by watching the video files

Since the appearance of web 2.0, the learning based on the use of web2.0 collaborative tools has appeared and took the name of E-learning 2.0. Despite several advantages of Web 2.0 applications, there are some limitations that need to be dealt with. For example, Web 2.0 does not provide specific tools for online learning which consequently enhance to adapt the current tools to the learning area. Several researches related to the educational 2.0 environment has been emerged; For example: the study through the blogs [3], podcasts and video casts [13], social networks [1] [15] as well as the study related to online learning by using blogs and podcasts [9] and games [14].

E-Learning 2.0 has introduced the concept of learning community [5] which focuses on supporting the development and solving educational problems through online collaboration. It also allows communication among learners and promotes the creation of a collective intelligence, recreating the traditional learning of the classroom and interaction between learners. In the framework of preserving the educational content of previous learning and opening up to learning communities, the pedagogical team has started to integrate contents of the previous learning into LMS such as the case of MOODLE platform which integrated blogs and social networks. However, the burden of this platform, the difficulty of its use by the public, in addition to the multitude of companies that develop software types, is major limitations. Different definitions of E-Learning 2.0 are possible. In this context, we define E-Learning 2.0 as a new distance learning environment which places the learner at the center of the formation by using web 2.0 tools and therefore migrating from the transmissive approach to collaborative one [11]. The following table outlines actors' roles in the context of E-learning 1.0 and E- learning 2.0.

Table 3. Actor's role in the context of E-Learning 1.0 and E-Learning 2.0

Actor	E-learning 1.0	E-learning 2.0
Learner	Attend classes, do homework	Use and Produce content
Teacher	Produce courses, exercises	Content validation
Tutor	Registration, monitoring learners	Followthe publications
Administrator	Management andsolution of technical problems	Has no role

In the context of E-learning 2.0, learners and their communities are engaged in creation a collaborative content by using free collaborative tools. This situation leads to the change of teacher functions. More clearly, teacher becomes a pedagogical supervisor of the learners rather than a holder of knowledge. While, the tutor is responsible for following the publication of his contents. However, the administrator will no longer be needed as an actor because web 2.0 tools are easy to use by any user without any computer knowledge or requirement.

3 VWIKI AND E-LEARNING 2.0

The Vwiki is a collaborative publication tool which has been created to answer the following question “who produces what when and how?”. It is presented as an extension of web2.0 wiki that requires not only a necessary identification and blog, social network and questionnaire as well, but it also provides the publication of relevant information. It is a new tool of publication which is based on the content validation by pairs and communal dynamic evaluation to ensure the quality of contents and therefore limit the publication of wrong information through web 2.0 wikis [12]. Despite advantages of the democratization of information which consists on the equal opportunities regarding the use of the web (the web allow everyone to easily read and write articles to be published online), there are limitations that needed to be dealt with; for example: there is a lack of control over the content which impacts the quality and reliability of the produced material. Furthermore, users have not the same age, the same specialties and the scientific qualifying as well. In addition and for the same category of user, we cannot consider equal:

- The one who produces and the one who only consume content ;
- The one how produces lot of information and the one how produces few one;
- The one how produces the right information and the one how produces the wrong one.

In this context, we propose four categories of users of the Vwiki:

- Consumers of information;
- Producers who consume and produce content;
- Valuators who validate the content;
- Experts who monitor the publication.

To make a relationship between the E-learning 2.0 actors, the following table presents different categories, roles and weightings of Vwiki users:

Table 4. Role and weighting of Vwiki users in E-Learning 2.0 context.

Vwiki actor	EAD actor	Role	Weighting
Consumer	Learner	Reading course content	1
Producer	Active learner	Reading and producing course content	5
Validator	Teacher	Validating of production	100
Expert	Tutor	Monitoring of publication	1

Web 2.0 wiki contains various types of information; they range from the most relevant to the worst and incorrect ones. However, Vwiki consists only of improving the right information due to its validation by valuator and teacher (or a group of teachers) in a pedagogical context. Our vision consists of creating committees to validate the information. They are composed of one or more teachers and supervised by the tutor who has the responsibility of not only monitoring the publication, but also selecting information and classifying content after elimination or final archive. In this context, we propose five types of information produced by learners. They are presented in the following table:

Table 5. Classification of the information on Vwiki

Symbol	Type of information	Meaning of the information	Weighting
G	Good	Validated and relevant information	100
A	Average	Moderately validated information	50
L	Low	Validated information after being corrected	10
W	Wrong	Not validated	-1000
C	Comments		1

The weighting of the quality of information consists of providing new and relevant information. The idea is to publish better information than the previous one in terms of its quality, and also publish information that completes it. This information serves as an indicator to the search engine to select information depending on its relevant degree.

The information produced on V wikis is in a various formats: text, images, podcasts and video casts.

4 STATIC AND DYNAMIC VALIDATION

As we noticed above, the wiki is based not only on the notion of validation of information before publication by teacher, but it also depended on the communal collaborative evaluation by all learners who are engaged in developing more participatory environments after the publication.

4.1 VALIDATION STATIC CONTENT IN A PEDAGOGICAL RESOURCES CONTEXT

The validation of content on the Vwiki covered the following steps: Firstly, teachers valid the content which is destined for publication. Secondly, the tutor publishes it after having not only the teacher agreement, but also after making sure that the weighting of the new content is better than the previous one in terms of quality. The following figure presents the process of publishing content on Vwiki:

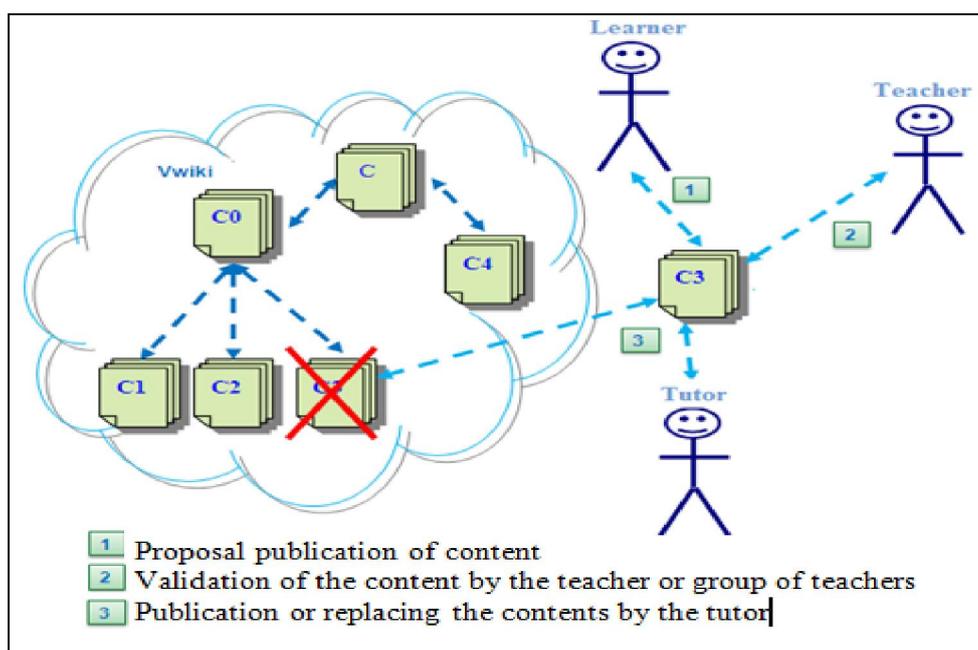


Fig. 2. Process of the static validation course content on Vwiki

In this context, the content can be modified after having the teacher agreement. The idea is to publish online version limited to the best or at least equal to the published information in terms of its quality. Therefore, the last information is the best one.

4.2 EVALUATION OF DYNAMIC CONTENT OF COURSE CONTENT

The Dynamic evaluation comes to complete the static one. It aims to measure dynamically the quality of information on the Vwiki and supports this tool evolution over the time. In this context, we propose to complete the teacher's static validation of information by users and learners dynamic collaborative evaluation. In this environment, the weighting that is proposed is equal to:

Table 6. Dynamic information weighting on Vwikis

$$\sum \text{weighting (content)} = (\text{initial weighting}) + \sum (\text{user's weighting} * \text{weighting of the information})$$

We have two contents weighting: the first one is affected by teacher towards content; the idea is that the new content must be important or at least equal than the previous one in term of score. The second weighting is dynamic and it will be accumulated at every time when the users assign a score to the content.

This new approach will enhance the decrease of the initial content weighting regarding to the published information relevant as well. The instantaneous dynamic weighting permit to improve research; more importantly, enables to select information regarding its relevant and thereafter leads to the final storage or disposal.

5 THE STRATEGY OF TEACHING BY USING VWIKI TOOLS

The VWiki is based on the static validation content made by the teacher before the publication of course material and depended on the dynamic evaluation assigned by the learners after the content publication. However, the tutor has the responsibility of publishing the validated course content through the Vwiki. The purpose of this process is to put the learning 2.0 project into practice. The idea is that in the first phase the teacher divides the course into several parts and distributes each part to learners. In the second phase, he puts a preliminary content on the blog of Vwiki through social networks. In this area, opinions, comments as well related to a specific relevant point regarding the course content, and questions-answers will be come out in the process of improving the quality of course content. In the third step, after the course validation and completion by teacher, the tutor will publish the course content on the educational Wiki. For the purpose of a collaborative course content created by learners and validated by teachers, learners and teachers are engaged together in contribution oriented pedagogy environments. Thereafter, this course content will be evaluated. To put this evaluation into practice, a questionnaire regarding each course material will be administered to learners. Based on the result of course evaluation made by learners, the course content will be kept by tutors if they find that it is affective and good. Otherwise, the tutors request new course material to be published on the class' blog. The vision of this process is providing an intended outcomes and effective quality of course content acceptable by learners. The following figure illustrates the process of course publication.

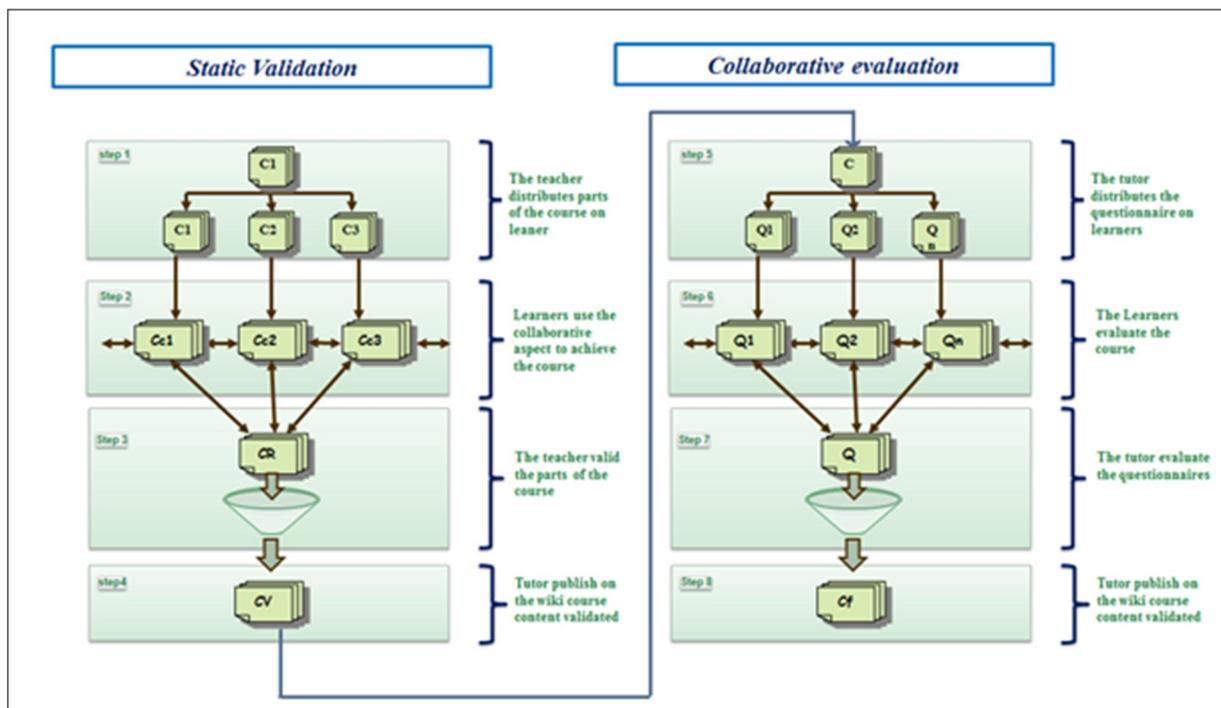


Fig. 3. The process of publishing the course content on Vwiki

The publication process in the context of Vwiki is recursive until extending the reach of better quality and reliability of produced material that is available for learners. Furthermore, the weighting depending on the type of learner, the score regarding the course content publication made by teacher and community are significant in terms of quality of information.

Vwiki in a pedagogical context is a participatory environment, centered on learners and supervised by teachers. The idea is not only to create learning communities, but it also makes a collaborative, interactive course content to help everyone to participate.

6 CONCLUSION

The purpose of this proposal is to adapt the Vwiki on a pedagogical context. The idea is to publish only the quality course content on the web. In this context, Vwiki tools will be used to provide a collaborative project and enhance learning and teaching. It is based not only on the static validation, but it also depended on dynamic validation. The vision is to create quality course materials and make the learner to become involved on the process of creation the course content.

In this context, the information published on the Vwiki will be well identified and organized, not redundant as well, it will be eliminated or archived when it is not useful. Furthermore and due to its dynamic weighting, the information will be used as an indicator for search engines to select information depending on the degree of its relevance. As perspective, we propose the following elements:

- Elaborate a multi-languages wiki ;
- Elaborate an unified strategy toward learning 2 .0;
- Create tools for selective diffusion of information ;
- Create tools for automatic abstracts and synthesis;
- Create tools for brainstorming and collaborative projects.

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