

# DATA IS A BUILT THING: (DE)CONSTRUCTING THE CURRICULUM THROUGH WIKIPEDIA WRITING

**Lia Raquel Oliveira, Lauro Martins, Manuel Capitão, Manuela Costa, Helena Barbosa, Elsa Cardoso, Boa-Nova Santos**

*University of Minho (PORTUGAL)*

*lia@ie.uminho.pt; steinbeck2011@gmail.com; man.capitao@gmail.com;  
manuelacosta111@gmail.com; lena@kanguru.pt; elsa.mpc@gmail.com;  
boanovasantos19@gmail.com*

## Abstract

Given the known difficulty of students to critically make use of information freely available on the internet, this project proposes to enhance their information literacy (access, selection, evaluation and information assessment) through integration of Wikipedia in the classroom within the formal curriculum. To such end pedagogical and didactical activities were created, embodied in curricular units that will lastly consist in Wikipedia articles, written in a collaborative way, by the students. The collaborative online encyclopedia Wikipedia constitutes a source of knowledge and a space for the possibility of knowledge creation, since it is anonymously edited and in a self-regulated fashion. It also provides a context to develop varied skills in the domain of multiliteracies. We present the design of the study and some preliminary results that point towards a first awareness of the produced nature of official knowledge.

Keywords: Wikipedia in the classroom, pedagogical innovation, knowledge construction, information literacy, multiliteracies.

## 1 PROBLEM IDENTIFICATION AND GROUNDING

This research stems from an observation: either university, high school and basic school students use with little criticism the information available on the Internet and, in particular, in Wikipedia. That is, they do not assess, usually, the reliability of these sources nor the information itself. They use the information indiscriminately even incurring in situations of plagiarism.

These students are designated as net generation [1], digital natives [2], generation of the screen [3] and so on. They grown up with these technologies but seem to use them in a very superficial way. "Is google making us stupid?"... [4]. They have grown with the digital/network information and communication technologies however the use they make of it seems far from being productive and beneficial whether to themselves or to society, mainly focusing on entertainment (gaming, music, social networks). It is obvious that these entertainment activities do generate considerable and notable informal learning - which the school should or should take into account and consider in the development of the formal curriculum - and yet apparently, that informal learning does not serve nor guarantee the educational neither the academic success.

At the same time, society requires to the education system to prepare young people to integrate the knowledge economy and to be able to generate added value through the use of these technologies, which as we know, sustain the knowledge economy..

According to Szesnat [5], research on the educational use of Wikipedia can be divided into two categories: use of Wikipedia as a database of knowledge and use of Wikipedia as a tool for teaching. We found a third category in the work of Jandric [6] whose approach analyses Wikipedia from the point of view of the philosophy that underlies it (anarchism).

Analysis of Wikipedia praxis in the light of basic concepts of anarchist philosophy of education shows the following:

- Engagement in Wikipedia is based on essentially anarchist beliefs about human nature.
- Engagement in Wikipedia is very close to anarchist concept of work.
- Wikipedia creates a virtual anarchist society. [6]

Jandric [6] adds: "No-one has ever created a fully egalitarian education system of nearly similar size and stability as Wikipedia". We ought to recall that as to concerns education, this idea is very close to the formulated by Ivan Illich [7], in the seventies, when the latter imagined the possible "knowledge networks":

A possible alternative to school could base itself in the constitution of four knowledge service nets: one commissioned of setting at the disposition of the public "educative objects" (instruments, machines, devices used for formal education); a second one charged of the exchange of knowledge (a sort of database for individuals eager to share their skills); a third net, dedicated to facilitating peer meetings (net of theme communication); a fourth net allocated to reference services in educators subject (annual gender) [7 *apud* 8].

This study inspires itself in these three dimensions: epistemology (Wikipedia contains a type of knowledge whose validation and reconnaissance depends on the user community); pragmatic (Wikipedia serves pedagogical and didactical objectives constituting itself as a considerable information source); and philosophical (Wikipedia constitutes an anarchist phenomenon in the educational universe, which deserves to be studied).

In such understanding, the study seeks to explore the nature of the relationship between student and knowledge in an active writing situation for Wikipedia, in such way raising awareness about the socially constructed nature of either official knowledge or individual knowledge which, beyond involving cognitive processes, anchors itself in the interaction with other individuals and with the natural and technological environment, as it is consensual.

It is important to highlight that this is not the matter of applying technology for technology. This is about using concrete technologies (computer, internet, software wiki) which allow to introduce in the classroom activities that would not be possible without them.

It is expected that the involved students do develop access skills to information and respective management [9, 10], that they develop dexterities of critical analysis to evaluate credible sources, to acquire specific knowledges in the field of the prescribed curriculum, that they become themselves more motivated to schooling and to, as Paulo Freire might have stated, *write to the world* (through Wikipedia and other systems), participating in the *collective intelligence* which the Internet environment facilitates.

## 2 METHODOLOGY

This is an exploratory case study [11, 12] carried out in an atmosphere of critical action research [13], the latter intended to raise critical thinking, encouraging grasp of consciousness and to give voice to actors involved.

### 2.1 The object of study, questions and objectives

The object of study configures itself, globally, in the problem of the management of information over the Internet that students perform in school situation. Concretely, focuses on the writing of articles for Wikipedia, by students of various levels of education in several disciplines.

For the purpose of delimiting, it will try to answer the following question: the activity of writing articles for Wikipedia, by students, in a formal school situation (conducted, followed and verified by the teacher) changes the way these students a) relate themselves to knowledge (awareness of the produced, constructed, dynamic nature) and b) use the available information on the web?

The objectives are as follows:

- 1) to provide students with knowledge and skills relative to the workarounds of Wikipedia (editing and organization) which will allow them to critically read the articles and participate on its writing;
- 2) to promote guided reading and writing (capacity of synthesis and arguing);
- 3) to promote the critical and reflexive overview over the facts and events;
- 4) to encourage students to use Wikipedia as a starting point for thematic searches, using the necessary validation filters;

5) to contribute to develop citizenship through the communication facilities offered by the Internet for the transmission and sharing of ideas.

## 2.2 Contexts, participants and ethical issues

The study takes place in several levels of education, in various disciplines and on different public schools in many locations, as seen in table 1.

Table 1 – Contexts of the study

Year and grade	Subject area	Place
4th grade (elementary)	Curricular area Environment Studies	Paredes de Coura
6th grade (basic education)	Portuguese	Paredes de Coura
6th grade (basic education)	Music Education	Paredes de Coura
8th grade (basic education)	Mathematics	Paredes de Coura
9th grade (basic education)	ICT	Salvaterra de Magos
12th grade (high school)	Portuguese	Viana do Castelo
1st year graduation (university)	Educational Communication and Technology	Braga

Participants are students from selected classes during the scholar year of 2012/2013 (two hundred approximately in total), as well as the teachers in charge over teaching those same classes (7 in total) in the role of participant researchers. Both students and teachers assume the role of researchers under different perspectives.

From an ethical point of view, the activities related to research integrate the regular curricular development of disciplines, under the teachers responsibility, to respect what is fixed on the formal programs (contents, objectives and assessment models). However, the directions of the schools involved were informed about the pedagogical innovations to perform. Such is, both the didactic activity and the investigative intention (critical action-research) embodies the *natural* curricular activity. It is not the case of generating an artificial laboratorial situation but rather creating, observing, analysing, studying a professional practice that is *real* and concrete. This is the real situation that allows the teachers to generate pedagogical innovation in a systematic way, structured and evaluated through reflection.

For the administration of opinion surveys, the usual informal authorization was requested. The right of refusal to fulfill the surveys was granted in an anonymous way, being used the online survey. One may question the subjects freedom in this process. However, since all procedures do integrate the planning of the curricular unit (the way the teacher organizes classes), such questioning loses grip in validation: in the scholar/academic system, student and teacher are *subjected* to the organization of the curriculum, whether macro, meso and micro. In the same way, they are subjected to procedures for formative and summative assessment (tests and exams). In the present case, the articles produced for Wikipedia constitute elements of formative assessment of learning.

## 2.3 Procedures, techniques and instruments for data collecting

The research is organized in four phases. The techniques and instruments for data collection are the appropriate ones to each phase and we are using: a) participant and non-participant observation, according to the situation/task, with records in the researcher diary; b) inquiry by questionnaire; c) formative assessment tests; d) and documentary analysis.

The treatment of data is also the most adequate to each technique and instrument used. We have mostly, content analysis [14] and descriptive statistic when justified as a form of synthesis.

These phases are discriminated above, as well as the associated tasks.

A) Construction of the theoretical framework and the instruments

Task 1 – selection and systematization of the literature, already collected, and preparation of the framework;

Task 2 – elaboration of the instruments for data retrieval (questionnaires of digital technology literacy, opinion and knowledge tests);

Task 3 – preparing of the pedagogical intervention (planning of the didactical unit);

Task 4 – student characterization (with resource to both the class director, files available to consultation by class teachers, and by survey of digital technological literacy).

#### B) Pedagogical Intervention and data collection

Task 1 – implementation of the activities scheduled on the didactic planning;

Task 2 – data collection (knowledge tests, observation, questionnaires, produced documents).

#### C) Data processing and interpretation

Task 1 – organizing collected data;

Task 2 – data treatment and interpretation;

#### D) Revising and writing final reports.

## 2.4 Pedagogical Intervention

Different didactic units have been created in accordance to the school norms (in the case of elementary, basic and high-school). In each class, a content from within the formal program was selected and addressed in project work methodology, investigative and cooperative work, under strict follow-up from the teacher. The classic didactic objective was such as promoting the conscious use of information and available knowledge on the Internet, by means of learning the functioning of Wikipedia and participating in the writing of an article. The works will come to be fully divulged in schools and in local press, in the best measure of possible.

## 2.5 Calendar

The research takes place between November 2012 and October 2013 in four phases (A, B, C and D) as seen in table 2.

Table 2 – Timeline of the study

Phases / months	2012			2013								
	nov	dec	jan	feb	mar	apr	mai	jun	jul	aug	sep	oct
A) Construction of the theoretical framework and instruments	X	X	X									
B) Pedagogical intervention and data collection				X	X	X						
C) Data treatment and interpretation						X	X	X	X	X		
D) Revision and writing of final reports											X	X

We are at the present moment in the phase of data treatment and interpretation and finalizing some of the pedagogical-didactic activities. Such allows us to advance some preliminary results and some clues for the interpretation, as well as a balance of the overall process.

### 3 PRELIMINARY RESULTS AND FINAL REMARKS

#### 3.1 From survey

From the application of the questionnaire of digital technological literacy and opinion we know now that all the children, teenagers and young people involved possess a computer and access to Internet at home. They also possess cell phones and use them more or less intensively. They use the computer at home mostly for gaming and also for writing. They use Internet for social activities (predominantly Facebook), to make music download, to watch videos on Youtube and also for occasional searches.

These results are, as to say, *normal*, expectable, nothing that could not be imagined by daily experience or known by database consult of national statistics. However, these data also tell us that these teenagers and young people (in their own justifications), that Wikipedia is not reliable (even though not knowing or enlightening on its why's), though the books are recognized, in a very declared way, as a more credible and serious source of information. However, Wikipedia is signaled as their primary and first source in any type of search: when they seek to know something for personal motives or for school work. Such is, in a first analysis, we present ourselves before a paradox, which lead us to believe that, despite the speed at which changes are occurring at the beginning of the twenty-first century, we are still in a period of transition: as referred by Negroponte, in 1995 [15], transition from a culture based in the value of atoms to a culture based on the value of bits. This transition has already completed operated in several areas of society (it is this transition that justifies and sustains the knowledge economy) and particularly in the academic universe (in this case in particular, in great measure by the action of the Open Source and Open Access movements). Apparently, such has not yet incorporated school mentality. On the other hand, it occurs to us if whether the simple concept/idea of encyclopedia will prevail... Most surely yes but with outlines that we are still to unfold.

#### 3.2 From observation

By means of direct observation and the appropriate record it was possible to understand that the majority of these young and teenagers does not know what is known as encyclopedic material. They are not aware of that we call public interest or common interest. They are not aware of what it means knowledge or specially, official knowledge that is, to be objective, what is taught in schools.

In brainstorming sessions that took place to select the topics to be depicted in the articles, the first ideas were very (if not too much) trivial. However, as work progressed, things started to shift: a different attitude was noticed, a more serious one, more involved, more motivated.

#### 3.3 Final remarks

In synthesis, we faced ourselves with two difficulties: 1<sup>st</sup>) it is hard to *write for* Wikipedia, it is necessary to understand what is an encyclopedic article and what is an encyclopedia – after all, what knowledge can be truly accounted as important and valid for people?; 2<sup>nd</sup>) it is difficult to *write in* Wikipedia: it requires a lot of technical skills whose domain is not at all evident.

To finalize, it is not as easy as it may seem to participate in this “anarchist phenomenon” which Wikipedia constitutes [6] and which relevates from the so called “collective intelligence” [16] which Internet makes possible. This participation demands motivation, effort, dedication, learning, *stuff* that school teaches by means of the educational communication.

The presented work is being worthwhile. As teacher/s, the regular classes and the subjects are being taught – this is only one didactic activity which is inscribed in a pedagogy oriented towards the transformation of the individuals, towards multiliteracy [17] and a culture of citizenship. These teenagers and young people are surely more equipped for the world we live on.

### FINAL NOTES

1) This work is supported by CIEd, Centro de Investigação em Educação, Universidade do Minho (Research Centre on Education).

2) The project is being developed with six regular teachers, students from the master course in Education, specialization area of Educational Technology from the University of Minho. It is

coordinated and directed by the first author who proposed the theme and who is also implementing the pedagogical experience. It is expected as a result of this project, other releases and publications more in-depth and centered on the particular cases.

## REFERENCES

- [1] Tapscott (1998). *Growing up digital: The rise of the net generation*. New York: McGraw Hill.
- [2] Prensky, M. (2001). Digital Natives, Digital Immigrants. *On the Horizon*, Vol. 9 No. 5, October 2001. Available at <http://pt.scribd.com/doc/9799/Prensky-Digital-Natives-Digital-Immigrants-Part1> (20 Mai 2012).
- [3] Kress, G. (2010). The profound shift of digital literacies. In J. Gillen & D. Barton (Eds.) *Digital Literacies*. London: TLR & London Knowledge Lab. Available at <http://www.tlrp.org/docs/DigitalLiteracies.pdf> (23 Mai 2012).
- [4] Carr, Nicholas (2010). *The Shallows. How the internet is changing the way we think, read and remember*. London: Atlantic Books.
- [5] Szesnat, Holger (2006). Who knows? Wikipedia, Teaching and Research. *SBL Forum*. Available at <http://sbl-site.org/Article.aspx?ArticleID=603> (17 July 2012).
- [6] Jandric, Petar (2010). Wikipedia and education: anarchist perspectives and virtual practices. *Journal for Critical Education Policy Studies*, vol.8. no.2. Pp. 48-73.
- [7] Illich, Ivan (1971) *Une société sans école. 4ième Edition*. Paris: Seuil.
- [8] Oliveira, L. R. (2004). *A Comunicação Educativa em Ambientes Virtuais*. Braga: CIEd/Universidade do Minho. <http://hdl.handle.net/1822/7672>.
- [9] Oliveira, L. R. (1997). *Uma Alfabetização Informacional para a Sociedade da Informação*. Dissertação de mestrado em Educação, área de especialização em Tecnologia Educativa. Braga: Universidade do Minho. <http://hdl.handle.net/1822/11>.
- [10] Oliveira, L. R. (2002). *Alfabetização Informacional na Sociedade da Informação*. Lisboa: Instituto de Inovação Educacional. Coleção Desenvolvimento Curricular.
- [11] Yin, R. (1994). *Case Study Research: design and methods (2<sup>nd</sup> Ed)*. Thousand Oaks, CA: Sage Publications.
- [12] Bogdan, R. & Biklen, S. (1994). *Investigação Qualitativa em Educação. Uma introdução à teoria e aos métodos*. Porto: Porto Editora.
- [13] Kincheloe, Joe L. (2008). Os Objectivos da Investigação Crítica: O Conceito de Racionalidade Instrumental. In J. M. Paraskeva, & L. R. Oliveira (Orgs.) *Currículo e Tecnologia Educativa. Volume 2*. Mangualde: Edições Pedagogo. Pp. 47–86.
- [14] Bardin, L. (1994). *Análise de Conteúdo*. Lisboa: Edições 70.
- [15] Negroponte, N.(1995). *Being Digital*. New York: Alfred A. Knopf, Inc.
- [16] Lévy, P. (1994). *L'intelligence collective. Pour une anthropologie du cyberspace*. Paris: La Découverte.
- [17] The New London Group (1996). A Pedagogy of Multiliteracies: Designing Social Futures. *Educational Harvard Review*, Vol. 66 Number 1 Spring 1996