Describe the documents from the search for the word to search for meaning: *Semantic Web application to educational technologies*

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The article aims to reflect, as much organic as possible, the relationship that has arisen between the applications of semantic web and educational technology.
The choice set according to this line of work has as its origin the need, which seems crucial to think, ten years after the birth of the "*Semantic Web Initiative*" is a changed methodology by which information is shared on the network and whether these changes induce a real added value to educational technology by evolving their methodologies.
The document with which the group of "*Semantic Web Initiative*" aimed to define their work says that "the goal of the Semantic Web is the Web the same: create a universal medium for data exchange", the universality of a support data exchange, but even better information must be based on a description logic that makes content "*device independent*".
Only a real logic of semantic cataloging of documents will enable the

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application of semantic web to support the methodologies related to educational technology in recurrent dialogue with the evolution of the web.
The ultimate goal is to see how educational technology, to benefit from applications of the Semantic Web is to provide tools for understanding and disambiguation of concepts to achieve shared documents that are "*machine readable*" to give answers to questions that users cannot make.

1 Web Semantics: back to the future

To address the issue of semantic web and define those that may be significant applications in the field of information technology, I believe it is necessary to have clear concepts that ultimately accumulate and are associated with the network.

Paradoxically, one could argue that the Semantic Web by its very definition has different interpretations, and that the meaning of words, the subject of semantics, it is paradoxically not shared.

Another detail of note is that we talk about the semantic web a few years ago when the definition is the same Tim Berners-Lee, the concept of the Web has been that the World Wide Web represents an environment in which the documents are accompanied by metadata and meta -information that they should declare the value and semantic context.

The Web, as is clearly shown in the diagram used by its creator to propose in 1989 at CERN (see Fig 1), is a conceptual map and ask today about how its applications can be a value added to educational technology means especially the methodology put in right relationship with the technologies that have allowed the disclosure.

The Web is configured over time more and more like a technical artifact rather than as an instrument of change in methodology and as a means of communication training.

The advent of Web 2.0 is often perceived more as a technological evolution rather than the possibility of giving a real possibility a purposeful use of the structure of the semantic web, in particular in the context of educational technology.

The WEB 2.0, which is associated with the American publisher Tim O'Reilly, is seen as an excellent set of software and applications that enable efficient use of the semantic web.

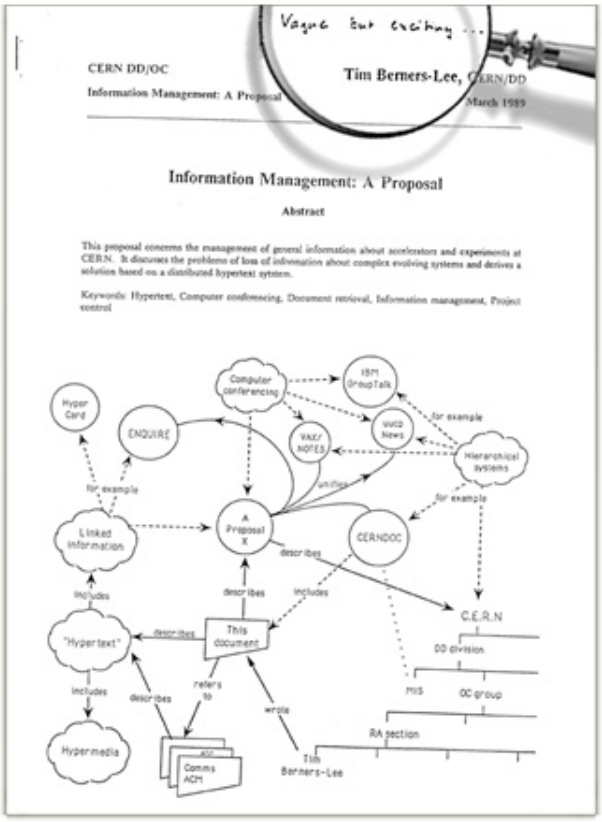

Fig. 1 - Conceptual map of the first proposal for the Web, the hypertext system "Mesh", proposed by Tim Berners-Lee at CERN in March 1989. Note the fact of Mike Sendall '*Vague, but exciting*' ('Vague, but exciting') (Image taken from info.cern.ch / Proposal.html).

Compared to the WEB 2.0 is interesting to quote the statements about O'Reilly and Berners-Lee:

1. "*New way of understanding the Net focuses on the content, information, interaction*" (O'Reilly)
2. "*No real meaning: everyone on the technologies that it wants to propose determines*" (Berners-Lee)

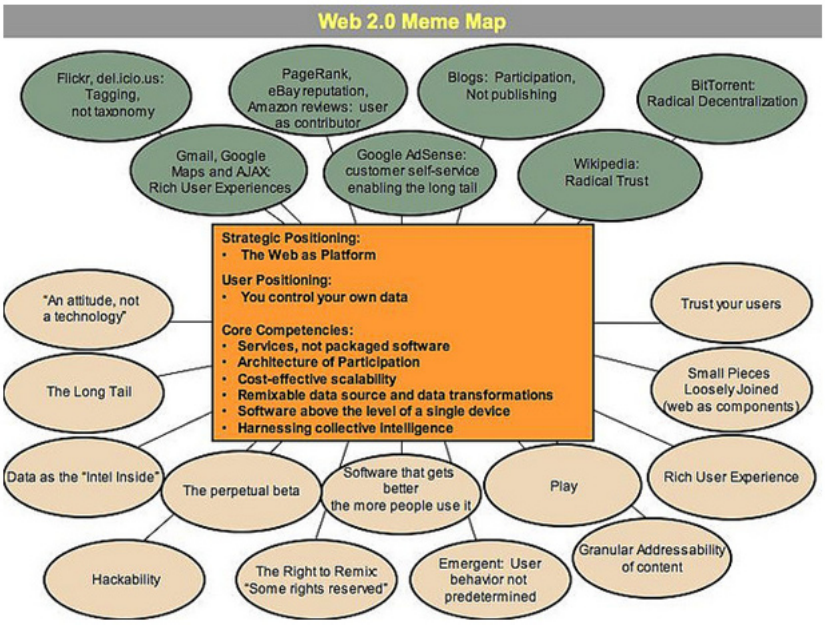

Fig. 2 - Meme Map of Web 2.0 posted on flickr by Tim O'Reilly

For the American publisher so the Web 2.0 is a web fundamentally different, while the inventor of the web is simply a more technologically advanced Web 1.0.

In their diversity, these statements indicate a paradigm that allows the semantic web applications through 2.0, to be an active instrument of educational technology: a user-centered web.

In this analysis it is not as marginal to the graphical representation used to outline the O'Reilly Web 2.0 in response to the question "What is Web 2.0", the answer to this question is a meme map (see Figure 2)..

The ***meme***[1] is defined as "*an idea, behavior or style that is spread from person to person within a culture*" (Merriam-Webster Dictionary) and is undoubtedly significant in the context that it is exploring.

The ***meme map*** is therefore a graphical structure that represents "the evolution and transmission of a meme in time and space"[2], a description that highlights a similarity with the natural processes of learning / teaching.

[1] The meme has its origin in the 1976 book "The Selfish Gene", the British biologist Richard Dawkins. In particular, the word is a contraction of the Greek word "mimema" which means something imitated. The book presents the theory of evolution from the perspective of the gene and not the individual or species.

[2] John Paull, Meme Maps: A Tool for Configuring Memes in Time and Space, in European Journal of Scientific Research - Vol.31 No.1 (2009), pp. 11-18.

2 From Web Medium to Web Format

The web has undergone an evolution that has taken him to be a logical structure, as had been thought but evolving from a medium format. The main use of the Web in its early days was more than mere means of transport data, no particular influence on the structuring of data and their treatment on a semantically significant.

The introduction of the Web, as has happened for all computer applications, it has left intact the area which was called to work.

If an initial intention was to use the Web as a universal library where everything was available, it was immediately clear that it was necessary to devise a method of storing data that would go beyond the simple concept of the archive.

Reasoning and a process that can only recall the way in which people learn, they need not only to "forfeit" information but do so in order to assimilate the connections and the significance of these connections.

The Web could not and should remain a medium but became a communication format, a way of structuring data can be recovered according to the logic that could change with the context of use.

The data must become information that had to be accompanied by reports that it was possible to identify each other.

Information would have to become aware, that should bring with you the links that could connect them and the significance of such ties.

Learning this is highlighted by the fact that people who often have the same set of data can not all equally to extract information, that is to link the data.

Continuing in this way also people who have made the same set of information have different knowledge, that have found different relationships between the information obtained and sometimes giving them different meanings.

What then is a fundamental support to the Semantic Web, ie, a semantic system storage and correlation of documents, can provide educational technology?

Definitely essential to realize the potential of the Semantic Web is to learn the use, by those who wish to govern the process of teaching / learning of languages that allow the formal description of the relationship between entities according to the logic of predicates.

The real use of semantic web technologies in the context of learning is just learning the description of the information according to the logic of assertions with simple structures: **subject**, **predicate** and **value**.

This logic has the added bonus of doing a meta reflection on our understanding, because to share should be described objectively, how to explain the process of sum without using numerical examples.

The logic of the standard assertions that he uses the Semantic Web as **RDF** (**R**esource **D**escription **F**ramework), language that allows information to describe and connect it to each element of individual resources.

Permettere che le persone ottengano come risposta a link o interrogazioni indicazioni di una risorsa non di un indirizzo.

For example (see Table 1) the claim ***Rome is an ancient city and rich of art*** can be described splitting it into two statements, each of which describes the components of the subject, predicate and value.

The student who uses a multimedia networking and asks to see the resources on the physics of metals cannot be truly satisfied in his quest if in fact the network has a series of addresses to find this information.

TABLE 1
Statement 1

Subject	Predicate	Value
Rome	is	an ancient city

Statement 2

Subject	Predicate	Value
Rome	is	rich of art

The addresses may change, the documents can be placed at different addresses and new addresses are added in time, the structure must be able to recognize a document to what it means not to where it is.

The semantic web has, probably, in this specific one of the essential points that educational technology cannot be separated from its use.

In fact you should not change the shape of the contents but simply describe the contents, the relationship between the content so that devices are no longer dependent on them and that their median logical reconstruction is not dependent only on rules interpretations.

Documents "*machine readable*" to enable the semantic web to play a role of DSS (Decision Support System) for Educational Technology in the selection of materials to be delivered to each user is to respond appropriately to user requests by reading the intentions.

3 Semantic research and data warehouse

The semantic web and scientific research for its increasingly widespread use to support and foundation of educational technology, definitely go for two main roads:

- make formalization languages like RDF, or **XML** (e**X**tensible **M**arkup **L**anguage) expertise "teaching";
- understand the techniques and develop techniques for semantic search, using what the network provides.

The semantic search, only possible in a Semantic Web, to be framed within an approach of artificial intelligence with the objective that the research to go beyond the search term to narrow the intentions of those who run the search.

If you enter into a search engine a deadline, the more so if the search engine is integrated in educational technology, such as "**Green**", cannot be consulting a dictionary to respond "*satisfactory*".

With his research you wanted to gather information about the writer Gerald Green or on issues relating to "*green space*" or sustainable energy, green energy?

A semantic search therefore does not deal with a text search on words but tries to identify the intentions of those who seek to give meaning to research.

The determination of that meaning is important because often the user does not know how to express this meaning in a formal way, we can connect to all the logic and systems that operate in data warehouses, especially at this level, *knowledge discovery*, which could be described as the ability to give answers to questions that you cannot formulate.

A semantic search tries to give answers to questions that the user can not ask if partially articulating his questions.

The main purpose of a semantic search engine, real prerequisite for the full development and use of a semantic web is the ability to contextualize research through the continuous analysis and comparison of the relationship between terms.

If the terms are the data, define relationships, explicit and implicit means get information, continuing to define the different relationships that are defined and definable information between means responding to the research, providing knowledge.

This is what is developing the project "***Google knowledge graph***" to observe and study in particular for his philosophy of a semantic search.

The philosophy of this project, but probably the correct approach to the Semantic Web is "*[...] teach a computer in the world there are only numbers, strings and words, but" things". And we human words and the numbers we use just to indicate: "For our brain is easy and natural, but for a set of links, processors and programs requires an extraordinary leap. Corresponding to the transition from data to information first, then from information to*

knowledge"[3].

This path full of possibilities, especially in the field of educational technology is already identified, albeit with different content considerations, by Eli[4] who in his book *The Filter Bubble: What The Internet Is Hiding From You* said "Google is no longer equal to all".

In this context it is interesting to highlight the dangers on one side of a network, such as Pariser says, can "*provide only information that we like to read*" and that "*the personal touch can produce a kind of determinism information*" but also as algorithms and tools are present to justify the efforts for the implementation of a semantic web and its constructive use in teaching.

The fact that Google, for example, to use the research we carry out 57 indices to determine **who we are and what sites we like to visit** is easily conceivable as a way of knowing **who we are and what we really need**.

It therefore goes beyond the concept of metadata, although it is fundamental to a semantically defined sharing of content.

The size of a semantic web, with a structure and descriptors that allow semantic searches, allowing you to explore is what you see become inter-actor.

A Web that allows educational technology to have a user/student **interactor**.

A person *interactive* and main *actor* of this interaction can be developed not through choices guided by dictionaries, albeit by more extensive pre-determined, but in context the role that the user "*plays*", in relation with other people and other resources.

Conclusion?

The Semantic Web seems to be not only the future of the web but the only way to harness the real value added that this "invention" has brought the world of communication.

Parallel in an era defined "information" you cannot ignore the need to provide the tools because this information is accessible.

The educational technology in this "chain" of information dealing with the segment that allows information to become knowledge.

The ratio of the semantic web - technology is not primarily to provide new tools of production but solid organizational tools, tools that can evolve and adapt to nature "smooth" the data and reports on the network.

At the bottom of educational technology and the web have to do with two

[3] Amit Singhal, reported in the article "Singhal, Google's brain: So we will build the pc thinking." Maurizio Di Bono, repubblica.it, May 15, 2012

[4] Chief executive of Upworth, a viral site (http://www.upworthy.com/) online since March 2012

environments structurally comparable facts and meanings of media and media outside semantics that, in one of its meanings purest considers the relationship between the expression and the extra linguistic reality is a key emphasized to read.

The way ahead, perhaps the richest of perspectives is that which is indicated by a reflection summarized by an aphorism of Albert Einstein: "*Most teachers waste their time asking questions aimed at discovering what the student does not know when the real art of questioning is to discover what the student knows or can learn*".

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