

WSCD: Negotiating the Web Science Curriculum Development through Shared Educational Artefacts

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We say nothing essential about the cathedral when we speak of its stones. We say nothing essential about Man when we seek to define him by the qualities of men.
Antoine de Saint-Exupery

The far-reaching impact of Web on society is widely recognised and acknowledged. The interdisciplinary study of this impact has crystallised in the field of study known as Web Science. However, defining an agreed, shared understanding of what constitutes Web Science requires complex negotiation and translations of understandings across component disciplines, national cultures and educational traditions. Some individual institutions have already established particular curricula, and discussions in the Web Science Curriculum Workshop series¹ have marked the territory to some extent. This paper reports on a process being adopted across a consortium of partners to systematically create a shared understanding of what constitutes Web Science. It records and critiques the processes instantiated to agree a common curriculum, and presents a framework for future discussion and development.

The need to study the Web in its complexity, development and impact led to the creation of Web Science. Web Science is inherently interdisciplinary. Its goal is to:

- a) understand the Web growth mechanisms;
- b) create approaches that allow new powerful and more beneficial mechanisms to occur.

Teaching Web Science is a unique experience since the emerging discipline is a combination of two essential features. On one hand, the analysis of microscopic laws extrapolated to the macroscopic realm generates observed behaviour. On the other hand languages and algorithms on the Web are built in order to produce novel desired computer behaviour that should be put in context. Finding a suitable curriculum that is different from the study of language, algorithms, interaction patterns and business processes is thus an important and challenging task for the simple reason that we believe that the future of sociotechnical systems will be in their innovative power (inventing new ways to solve problems), rather than their capacity to optimize current practices.

The Web Science Curriculum Development (WSCD) Project focuses European expertise in this interdisciplinary endeavour with the ultimate aim of designing a joint masters program for Web Science between the partner universities. The process of curriculum definition is being addressed using a negotiation process which mirrors the web science and engineering approach described by Berners-Lee (figure 1 below).

The process starts on the engineering side (right). From the technical design point of view the consortium is creating an open repository of shared educational artefacts using EdShare [1] (based on EPrints) to collect or reference the whole range of educational resources being used in our various

¹ <http://wiki.websciencetrust.org/w/Curriculum>

programmes. Socially, these resources will be annotated against a curriculum categorization [2] which in itself is subject to negotiation and change, currently via a wiki. This last process is represented by complexity and collaboration at the bottom of the diagram. The resources necessarily extend beyond artefacts used in the lecture and seminar room encompassing artefacts associated with the administrative and organisational processes which are necessary to assure the comparability of the educational resources and underwrite the quality standards of the associated awards.

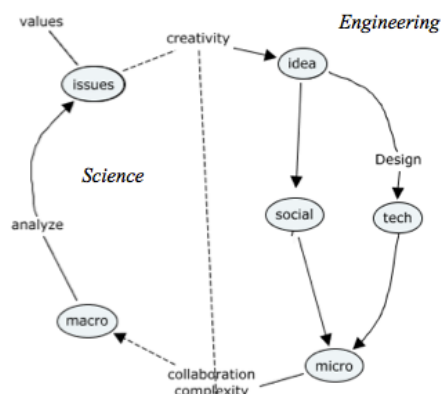


Figure 1: *Web Science and Engineering Approach*
(e.g. See <http://www.w3.org/2007/Talks/0314-soton-tbl/#%2811%29>)

From the social point of view the contributions will be discussed and peer reviewed by members of the consortium. Our intention is that by sharing the individual components of the teaching and educational process and quality assuring them by peer review we will provide concrete examples of our understanding of the discipline.

However, as Berners-Lee observes, it is in the move from the micro to the macro that the magic (complexity) is involved. The challenge for our consortium, once our community repository is adequately populated, is to involve the wider community in the contribution, discussion and annotation that will lead to the evolution of a negotiated and agreed but evolving curriculum for Web Science.

Others have worked on using community approaches to developing curriculum. For example, in the Computer Science community there is a repository of existing syllabi [3] that enables designers of new courses to understand how others have approached the problem, and the Information Science community is using a wiki [4] to enable the whole community to contribute to the dynamic development of the curriculum. What makes this project unique is that rather than taking a top down structured approach to curriculum definition it takes a bottom up approach, using the actual teaching materials as the basis on which to iteratively negotiate and refine the definition of the curriculum.

References

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