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## **D3.2.12. Report on the Knowledge Web Summer School on Ontological Engineering and the Semantic Web (SSSW 2007)**

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**Abstract.**

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# Knowledge Web Consortium

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## Changes

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0.1	30-10-2007	Barry Norton	Stats and initial version
0.2	23-11-2007	Barry Norton	Further stats and pre-final edits
0.3	23-11-2007	Enrico Motta	Final Revision

## **Executive Summary**

This deliverable reports on the Fifth Summer School on Ontological Engineering and the Semantic Web (SSSW'07).

## Contents

<b>Introduction .....</b>	<b>1</b>
<b>Organization Model followed .....</b>	<b>2</b>
<b>Sponsors .....</b>	<b>2</b>
<b>Statistics .....</b>	<b>2</b>
<b>Organization .....</b>	<b>3</b>
<b>1. Poster session .....</b>	<b>3</b>
<b>2. Topics .....</b>	<b>4</b>
<b>3. Mini-Project .....</b>	<b>4</b>
<b>4. Student Suggestions and Comments.....</b>	<b>5</b>
<b>5. Conclusions with regard to the summer school .....</b>	<b>7</b>

## Introduction

According to the revised KnowledgeWeb Technical Annex a report on the fifth Summer School on semantic web technologies is required at the end of the fourth year of the Network's existence. This report gives information about the Fifth European Summer School on Ontological Engineering and the Semantic Web (SSSW-2007).

This is the fifth SSSW summer school following on from the success of the second, third and fourth school held under the auspices of KnowledgeWeb in 2004-2006.

The schools web site is at: <http://knowledgeweb.semanticweb.org/sssw07/>

The school was held in an excellent conference facility belonging to the Universidad Politécnica de Madrid, in the Sierra de Guadarrama Mountains about 50 km from Madrid.

While the school was underwritten by KnowledgeWeb, we had six other sponsors ranging from universities to private companies, including the Universidad Politécnica de Madrid, The Open University, and X-Analysis.

The school consisted of six tutorials and five practical sessions, together with mini-project and poster competitions, and six invited talks. The tutorial content was:

- OWL Overview (with practical session) – Sean Bechhofer
- Conceptualisation and Design – Aldo Gangemi
- Ontology Mapping and Alignment – Jérôme Euzenat
- Ontological Engineering – Asun Gómez-Pérez
- Human Language Technologies and Machine Learning for the Semantic Web – Fabio Ciravegna
- Semantic Web Services – John Domingue

'Conceptualisation and Design' was a new addition to the schedule, presented on the first day (along with OWL), to increase the early exposure of those students with less background in this area. It replaced 'Knowledge Representation Design Patterns' in the morning theory schedule, but this was presented as an afternoon practical session in addition to: OWL; Conceptualisation and Design; Ontology Matching and Alignment; Human Language Technologies and Machine Learning; and Semantic Web Services.

The poster session was continued from previous years and made mandatory so that all students presented a poster. Some posters were designed and printed on-site in the first day of the school, but most were brought along as required. Since there were so many posters, their presentation was split into two sessions on the Monday and Wednesday evenings.

As a means of integrating the work on the seven topic areas, students worked in groups of 5 on a mini-project related to one of the topic areas. The students presented their project work on the last day of the school and prizes were given for the best overall project, a runner-up and for the most original and provocative project.



The six talks by invited speakers gave additional perspectives to the tutorial material and were unanimously welcomed by all the participants at the school.

While in general staff and students expressed satisfaction both with SSSW-2007's organization and content, a more detailed analysis of the questionnaire sent to students after the school indicates a few areas in which improvements could be made.

Of the 50 students at the summer school, 39 returned completed questionnaires, a 78% return rate, just slightly down on the figure that had been achieved recently but well above the 52% return rate initially achieved when the questionnaire was first used.

## Organization Model followed

As in previous years, a simple organizational model was followed with John Domingue as Director making the overall decisions about location, student numbers, tutor selection and so on. The Director normally consulted with the co-Director (Asunción Gómez Pérez) on all these aspects. The co-Director also acted as local organizer, making decisions on the detailed logistics based on the overall strategy. Once the decisions were made about the summer school components (number of tutorial strands, hands-on sessions, mini-project) and the tutor team selected, they, along with some of the invited speakers, formed an ad hoc management board in which any remaining decisions about, for example, the format of and detailed interaction among the various components of the school, were made, usually by email or telephone conferences.

## Sponsors

There were 5 sponsors:

- KnowledgeWeb
- The Open University
- Universidad Politécnica de Madrid
- X-Analysis, Cambridge, UK
- The SUPER project

## Statistics

The summer school had 50 students, mostly in the 1<sup>st</sup> or 2<sup>nd</sup> years of their PhDs, from 15 countries. There were 7 tutors and 5 invited speakers from 6 countries. There were 85 submissions.

Continuing attempts were made this year to redress the imbalance between male and female; in 2004 only 26% of the students were women. This year the proportion was up to 40%.

Austria	1	Ireland	2
Belgium	2	Italy	2
China	2	Netherlands, The	3
Croatia	1	South Africa	2
Finland	1	Serbia	2

France	7	Spain	7
Germany	6	United Kingdom	10
Greece	2	Total	56

**Table 1: number of students per country**

Males: 30	Female: 20
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**Table 2: Female/male percentage: i.e., 40% of the students were women**

The rest of this report will give an analysis of important aspects of the completed questionnaires.

## Organization

58% of the students said they were 'Very Happy', with the remainder (but for one abstention) being 'Happy', with the organization of the summer school. Two central questions relating to the structure of the summer school were asked: firstly, about student's rating of the importance of including a component; secondly on their enjoyment of a component. Student scores ranged from 1 = lowest rating to 5 = highest.

As Table 3 indicates, the greatest number of students gave 5s to all the school components apart from tutorials which had a mode of 4, exactly as per last year, thus indicating that they felt that all components should have been included and that the summer school is now mature and performing consistently.

*The organisation was just perfect. I have nothing to complain.*

Inclusion				Enjoyment				
tutorials	hands-on	talks	project	tutorials	hands-on	talks	project	
4	3	4	4	3	4	4	2	<b>2003</b>
4	4	4	4	3	3	4	3	<b>2004</b>
5	5	5	4	4	4	5	4	<b>2005</b>
4	5	5	5	4	4	5	5	<b>2006</b>
4	5	5	5	4	4	5	5	<b>2007</b>

**Table 3 showing the statistical mode for the student responses**

## 1. Poster session

*Request posters in dining room also publish them on SSSW site*

The poster session, established 2005, is also maturing and was generally well received. It is intended to be as much a social, networking event as a formal presentation of ideas. 54% of the students found the poster session useful while 41% found it very useful. 54% found the feedback from tutors useful while 44% found it very useful (only 1 reporting being unhappy). 77% found the feedback from other students useful while 18% found it very useful.

85% of students would include posters in future years, among the others two abstained. Most of the negative comments revolved around the noisiness of the sessions,

*By dividing these in different/several rooms too much noise actually!*

despite (or maybe due to) two separate rooms being used in both sessions. In addition it was felt that it was not entirely clear in the school material that participation to the poster session was mandatory.

## 2. Topics

OWL	Conc. & Design	Ont. Eng.	Match. & Align	HLT & ML	SWS	Ont. Valid	
5		5	3	5	4	5	
4		4	3	4	4	4	2006
5	5	4	3	4	3		2007

Table 4. Modal scores for topic fulfilment of expectations

OWL	Conc. & Design	Ont. Eng.	Match. & Align	HLT & ML	SWS	Ont. Valid	
5		4	5	5	5	3	
4		4	4	4	4	3	2006
4	4	5	3	4	4		2007

Table 5 Modal scores for topic enjoyment

As Table 4 indicates, on the question of how well a topic fulfilled expectations, the modal scores (the most frequent scores returned by the students) have essentially stayed the same, with the value increasing for one topic and decreasing for another.

A similar pattern occurs in enjoyment: one modal score has increased, another has decreased, the others stayed the same, and the replacement topic out-performed its predecessor.

The following list indicates what topics students feel should be added:

- Reasoning (most popular request, including request for reasoning with inconsistency)
- Web 2.0
- Knowledge Acquisition
- Ontology Evaluation
- Information Retrieval
- Information Extraction
- NLP
- Query languages for ontologies
- Ontology Evolution
- Applications

Finally, most students were either happy (69%) or very happy (21%) with the topics associated with hands-on sessions and the assistance given by tutors (51% and 44%, respectively).

## 3. Mini-Project

	<b>Happy</b>	<b>Unhappy</b>
<b>Organisation</b>	<b>87%</b> (23 happy : 11 very happy)	<b>10%</b> (4, leaving 2 abstention)
<b>Time Given</b>	<b>72%</b> (28, leaving 1 abstention)	<b>26%</b> (7 too little : 3 too much)
<b>Tutor Availability</b>	<b>95%</b> (18 happy : 19 very happy)	<b>3%</b> (1, leaving 1 abstention)
<b>Coordinator</b>	<b>95%</b> (27 happy : 10 very happy)	<b>0%</b> (0, leaving 2 abstentions)

**Table 6 Answers to questions about the project**

Table 6 indicates that in general students were happy or very happy with the project organization, tutors and coordinator. A significant proportion were concerned about the time given for the project, but these were by no means all in favour of giving more time.

#### 4. Selected Student Suggestions and Comments

*The requirements for the mini-project were a bit vague, and at first this was a bit scary. But at the end I actually think that this makes the project more interesting.*

Have you any suggestions as to how organization might be improved?	<p>Sessions/presentations should have that [sic] much material that could be presented (so that you don't need to skip at runtime).</p> <p>I like to include [sic] or to allocate an amount of time for students who want to give any kind of presentations.</p> <p>It's really critical to make sure that the bar is open every night.</p> <p>Less [sic] rules (especially in accommodation, drink &amp; food).</p> <p>Less [sic] rules.</p> <p>By moving it to seaside! :)</p> <p>Well... Maby [sic] it should be two weeks long.</p> <p>Doesn't have to! It is very well organised (generally).</p> <p>PLEASE!!! HAVE REALL [sic] COFFEE!</p> <p>1. Food. 2. Food. 3. Food.</p> <p>The food.</p> <p>It's necessary [sic] a meal machine.</p>
Would you add any additional components, and if so, what?	<p>It is a very intense course so adding components is probably not a good idea.</p> <p>Disputes, have a tutor ask a [sic] questions, and lead brainstorming sessions!</p> <p>It would be useful to have an introductory session for everyone to introduce themselves.</p>

	<p>Better hands-on and better formal tutorials.</p> <p>I don't know how that [sic] is feasible but maybe more (dedicated) time slots to talk to the tutors / invited speakers.</p> <p>Maybe more dedicated slots for talking to tutors.</p>
Any other comments on the organization of the summer school?	<p>The organisation was just perfect. I have nothing to complain.</p> <p>You really did it good [sic].</p> <p>That thing about "people learn more when they're having fun" really seems to work very well.</p> <p>Pretty good, well organised and fun as well as nice work.</p> <p>Perhaps more flexibility in time.</p> <p>The dinner is too late! Have it earlier and have brainstorming / free discussions afterwards.</p> <p>I thoroughly enjoyed this week, from the organisation and from the duty point of view. Even though I had to be responsible all the time, and there was no time slot to retreat for ourselves.</p> <p>Everything was great!</p> <p>An extra day with social events.</p> <p>Food.</p> <p>More time for hands-on sessions.</p>
Have you any suggestions as to how poster sessions might be improved?	<p>Give the list of presenters/topics in advance so we can have a better idea of the people we would like to talk to.</p> <p>More time for tutors to visit each poster. Some tutors never looked at mine.</p> <p>We haven't enough feedback from tutors or at least from tutors not allocated to posters.</p> <p>It should not be compulsory for students not in final year of PhD.</p> <p>Inform the students more clearly about poster session.</p> <p>I wish that the poster session is compulsory on the website of the summer school in a visible way including requirements such as poster size.</p> <p>Making more clear that poster session is obligatory.</p> <p>Clearly indicate the need for a poster in a red frame on the web-site, and make sure that the email is sent to all students attending.</p> <p>Request posters in distinct form also publish them (at least title and abstract) on SSSW site.</p> <p>Handouts for everyone.</p> <p>The room was too noisy.</p> <p>Could be organised so that they won't get that noisy?</p> <p>By dividing these in different/several rooms too much noise [sic], actually!</p> <p>Better place for posters.</p>
Add any critical comments or positive suggestions as to how hands-on sessions might be improved.	<p>I would rather learn something than provide research data on usefulness of tools/patterns/ideas.</p> <p>1 topic each afternoon, no coffee break during hands-on, it is too long...</p> <p>Little feedback from the hands-on session.</p> <p>Just focus on few concepts for each. 70 slides are really too much! I can read that at home. What I'd like to have is that tutors just filter for us only some main important concepts.</p> <p>Some tutors had too many slides which meant that content was skipped.</p> <p>Give slides also in digital format.</p>

	<p>SWW [sic] was a bit overguided. OM was a bit deceptive 'cos we just did extremely easy work. Time limitations, you know.</p> <p>Allow more time for hands-on sessions.</p> <p>Sometimes the software was not stable and we were not rewarded (in terms of) seeing the fruits of the effort (of following the instructions).</p> <p>Could [sic] be nice to know how things work instead of “acting as a test subject”.</p> <p>Some of younger tutor assistants didn't help us very much. Too many tasks. We didn't have time for all.</p>
<p>Add any critical comments or positive suggestions as to how the mini-project sessions might be improved.</p>	<p>I would have liked better criteria in the beginning. It was too open-ended.</p> <p>The requirements for the mini-project were a bit vague, and at first this was a bit scary. But in the end I actually think this makes the process more interesting.</p> <p>Less practical implementation but more ideas and research problems/issues to discuss.</p> <p>Good idea to have the deadline at 8:00 on Friday [but coordinator] was missing when the deadline was approaching and the network was dodgy.</p> <p>Some people provided implementations which obviously improved their project quality – at times there were mixed messages with respect to the projects – i.e. high level, no implementation, not too much technical detail, then more technical detail...</p> <p>Define them better, split projects into theoretical and implementation ones. Define evaluation.</p> <p>The mini-project should, IMHO, start earlier in the week and, maybe, allow for a bit of work on the design/implementation side.</p> <p>It's a good idea focusing on a “product” but defining the result as a presentation (only) falls a bit short off [sic] the line. Anyway, it's fun and helps you see different points of view.</p> <p>By showing past best mini-projects.</p> <p>Maybe it would be possible to automatically allocate the groups based on research interests in order to encourage diversity.</p> <p>Consider random assignment of problems?</p> <p>Give double more [sic] topics than groups and each group has to pick different.</p> <p>Giving some areas of research, where the projects should be located.</p>
<p>Any other comments or suggestions</p>	<p>Well, I am sorry about having to say this , but this has been an amazing week. I have no idea how it could be improved, and I really tried to find some.</p> <p>Thanks for all the people that organise the SS. Perhaps the schedule is so [sic] compact. Too much information in not to [sic] much time. I think that I should have a break between formal tutorials. But I had a very good time.</p> <p>I cannot think of something that was not good in the Summer School. Well, maybe the food, I would like to have more fruits and salad. And they should ask us if we will have wine before opening the bottle. It was a great experience! There should be a Winter School also!</p> <p>What about a 2 weeks summer school? With more social activities, and for example a “real” walk in mountains like 1 day!</p> <p>Thanks for the week, I will probably stay in science just for that.</p> <p>I love this place! Spectacular!</p> <p>Just continue. I will recommend this summer school to friends!</p> <p>Thank you!!</p>

As in previous years there were some critical comments about the food, and there were an increased number of comments about availability of coffee.

## **5. Conclusions with regard to the 2007 summer school**

1. Although some students felt that they should be guided more on the selection of the mini-project topic, there are good pedagogical reasons in having them formulating their own topic, through a discussion internal to the group. However, we could make clear this motivation at the start of the week, so that they can handle the uncertainty more easily.
2. We must definitely keep the poster session but ensure that students receive up-front information on this. We have already planned to issue a poster template in advance next year. We should also look closely at the logistical arrangements for the session.
3. Since there were a number of comments about slides being skipped during presentations, we should perhaps monitor more closely whether tutors' slide sets are feasible in advance.
4. Tutors should be careful in their presentation of the hands-on session to avoid the impression that the students are being used as 'test subjects' (even though from a tutors' point of view it's a good opportunity to watch first-hand use of tools).
5. As in previous years, the idea of a Winter School has been mentioned and should be considered.
6. Food is obviously still an issue, even for the non-vegetarians, but so is coffee (and water) which can probably be much more easily addressed (and does not conflict with the urge to make sure that students attend each dinner and socialize).

## **6. Conclusions with regard to 5 years of the SSSW series of summer schools**

Taking a broader perspective, we can look back to 5 years of the Cercedilla summer school with much pride for what has been achieved. The first school took place in 2003, under the auspices of the OntoWeb Network of Excellence and from the very beginning it stood out in the crowded calendar of educational events, as an innovative, exciting and enjoyable event, very different from many other schools, where students tend to remain passive recipients of off-the-shelf lectures. On the contrary, the emphasis on intensive student-student and student-tutor interaction, on constructivist learning and on stimulating competitions, has made this an unforgettable event for the students, many of which consider their participation to the summer school as a key moment in their academic progress. In addition, reflecting the prestige enjoyed by the school, other events have been set up, such as the Asian Autumn School on the Semantic Web, which explicitly recognizes the SSSW series of summer schools as its 'inspiration'. Indeed, all three organizers of the Asian Summer School actually participated to one or another of the SSSW events and therefore they were able to capitalize on the lessons learnt from SSSW from direct experience of the school, rather than from second hand descriptions.

It is also nice to see that many of the students who participated to the summer schools have gone on to do very well. Just to give a couple of examples, one of the students who took part in the very first summer school back in 2003, Marta Sabou, was one of

the ten winners of the highly prestigious IEEE Intelligent Systems "AI's 10 to Watch" award, which was given back in 2005 to the most promising young up-and-coming AI researchers. Another example of the success enjoyed by SSSW students is shown by the fact that the last two editions of the Semantic Web Challenge, which is held annually within the International Semantic Web Conference, were won by teams which included former SSSW students.

Looking forward to the future, plans are now in place to ensure that the SSSW series continues even after the end of the Knowledge Web initiative. A steering committee, comprising Enrico Motta, John Domingue, Asun Gomez-Perez, Fabio Ciravegna, and Natasha Noy, has been set up, with the role of coordinating the continuation of the series. Indeed, the organization of the 2008 edition is already progressing at speed.

In conclusion, it is obvious that the SSSW series of summer schools has been a great success and it also promises to be a sustainable and enduring outcome of the Knowledge Web Network.