



Project no. 217725

Project acronym: Mind the Gap

Project title: Mind the Gap: Learning, Teaching, Research and Policy in Inquiry-Based Science Education

Dissemination level: O

Thematic Priority: Science in Society

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Deliverable title European workshop HST

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Name of Coordinator: Professor, Doris Jorde, University of Oslo, Norway

Name of lead partner for this deliverable: Ghislaine gueudet



REPORT

WP5:

Deliverable 5.3

European workshop for using HST in IBST through use of ICT in science teaching

S. Laubé (PaHST, University of Brest), T. de Vittori (LML, University of Artois), H. Ferrière (PaHST, University of Brest), O. Bruneau (CREAD & PaHST, University of Brest)

A European workshop on the use of HST in IBST through use of ICT in science teaching followed by delivery of a report on this.

S. Laubé (PaHST, University of Brest)

We organized in Arras, France, July 2nd 2009, a first workshop about “HST in IBST through use of ICT in science teaching” as a part of a larger one about “History of Science and Technology : Resources and methods for Inquiry Based Science Teaching (IBST)” (see the call for communication and the program in the annex I). Because the location (Arras) and the inadequate date (at the beginning of July), the research fellows that we invited in order to give a european dimension could not come. Therefore, we then considered that this workshop has not reached the expected target of our deliverable 5.3. We decided to organize a new one in better conditions in order to succeed. Because we obtained a grant from the University of Artois, a book of research papers will be published and it will be considered as a product of the deliverable 5.3.

Finally, we were asked to propose a symposium about HST, ICT and IBST in the forthcoming congress of the European Society of History of Science be held in Barcelona in November 2010¹.

The report will present: I) the first Workshop in Arras, France, in July 2009; II) the next european workshop be held in Brest, France, in March 2010.

¹ <http://4eshs.iec.cat/>



Workshop « History of Science and Technology : Resources and methods for Inquiry Based Science Teaching (IBST) »

Arras (France), July 2nd 2009

S. Laubé & T. de Vittori

The deliverable 5.3 was included in the organization by the ReForEHST Group of a European colloquium about “History of Science and Technology : Resources and methods for Inquiry Based Science Teaching (IBST)” (see Annex 1²). This French group was created in 2005 by historians of science (teaching in several Instituts for Teacher Training³ in Paris, Versailles, Montpellier, Caen, Arras et Bretagne). Every year, a colloquium is organized about the role of Epistemology, History of Science and Technology in the French teacher training⁴.

At the European level, S. Laubé were in charge with C. Debru (Ecole Normale Supérieure, Paris) P. Heering (University of Oldenburg) and P. Grapi (University of Barcelona) of a symposium in the ESHS Conference held in Vienna in September 2008 “HISTORY OF SCIENCE IN EDUCATION AND TRAINING IN EUROPE”⁵.

Program of the workshop (July 2nd 2009)

9h Registration and coffee

9h30 Opening remarks (T. de Vittori)

10h Marc Zarrouati (University of Toulouse, France)), *What is scientific in a scientific inquiry? Genealogy of Knowledge as a cure against the temptation of ‘Treasure Hunt’*

10h40 Marianne Cormier (University of Moncton, Canda), *Science teaching to Francophone minorities in Canada : inquiry based science teaching combined with discourse enabling strategies*

11h20 Alain Bernard (Centre Koyré, Paris), *Why is it necessary and important to view the question of the role of history of science and technology in the promotion of IBST as ahistorical one ?*

12h Lunch

14h Workshop : introduction

² see : http://plates-formes.iufm.fr/ehst/rubrique.php3?id_rubrique=36

³ IUFM : Institut Universitaire de Formation des Maîtres

⁴ http://plates-formes.iufm.fr/ehst/rubrique.php3?id_rubrique=3

⁵ <http://conf.ifit.uni->

klu.ac.at/eshs/images/M_images/PDFs/suss.%20liste.%206.%20sept.pdf



14h30 Sylvain Laubé (University of Brest) *Methodology for research in IBST, EHST and ICT : case study in physics*

15h10 Thomas de Vittori (University of Artois) *Methodology for research in IBST, EHST and ICT : case study in mathematics*

15h50 Open discussion : *Resources and methods for Inquiry Based Science Teaching*

17h30 Closing cocktail party

The talks showed a good scientific quality, but we cannot consider that the target of the deliverable 5.3 was attempted, because our European colleagues could not be able to come at this period of the year.

We then decided to prepare another workshop based once again on the invitation of European research fellows working in this area and a call for proposals in order to create a network.

Workshop “Mind the Gap”: History of Science and Technology (HST): ICT Resources and Methods for Inquiry Based Science Teaching (IBST)

Brest (France), March 18th and 19th 2010

S. Laubé

The European workshop is organized with the help of five labs in order to ensure the scientific quality in each area (Education, History of Science, Information and Communication Technology) :

- CREAD (UHB/Univ. Brest/Education Science)⁶
- PaHST (Univ. Brest/History of Science & Education)⁷
- Centre F. Viète (Univ. Nantes/History of Science and Technology)⁸
- LML (Université d’Artois/Didactics and History of Mathématiques)⁹
- TELECOM Bretagne/LabSTICC (UMR CNRS 3182 /ICT)¹⁰

⁶ <http://cread.bretagne.iufm.fr/>

⁷ <http://pahst.bretagne.iufm.fr/>

⁸ <http://www.sciences.univ-nantes.fr/cfv/>

⁹ <http://www.univ-artois.fr/recherche/unites-de-recherche/lml>

¹⁰ http://www.telecom-bretagne.eu/recherche/reseaux_et_laboratoires/labsticc/

Date: November 23th 2009

Place: Bretagne (France)

Activity: WP5-Deliverable 5.3



The workshop will present two parts: 6 conferences of European research fellows, scientific sessions from the call of proposals (see Annex II; <http://pahst.bretagne.iufm.fr/>) and a round table in order to summarize the results of the workshop, to analyze the conditions to create a European network about the theme “ICT, HST and IBST”.

From the invited papers and the best communications, a collective book will be published that we will consider as a deliverable in the Mind the Gap Project.

The following research fellows have been invited:

Pietro CORSI (to be confirmed)

Faculty of History
University of Oxford
England

Pere GRAPI

Centre d'Estudis d'Història de la Ciència
Universitat Autònoma de Barcelona
Barcelona, Spain

Snezana LAWRENCE

Education Officer of the British Society for the History of Mathematics
Bath Spa University
Corsham Wiltshire, England

Maria Rosa MASSA-ESTEVE

Centre de Recerca per a la Història de la Tècnica Matemàtica Aplicada I,
ETSEIB
Universitat Politècnica de Catalunya
Barcelona, Spain

Peter HEERING (to be confirmed)

Institut für Physik und Chemie und ihre Didaktik
Flensburg Universität
Flensburg, Germany

Ioannis KANELLOS



LabSTICC (UMR CNRS 3192)
Institut TELECOM, TELECOM Bretagne
Brest, France

Annex I : Workshop Arras (France), July 2nd 2009

S. Laubé (PaHST, University of Brest) & T. de Vittori (LML, University of Artois)

Call for proposals

(http://plates-formes.iufm.fr/ehst/rubrique.php3?id_rubrique=36)



30 juin – 1er juillet 2009

*Épistémologie et Histoire des Sciences et Techniques (EHST) :
quelles ressources pour la formation des maîtres ?*

Dans le contexte français, depuis la mise en place du cahier des charges de la formation des maîtres, les réformes se succèdent. Comme chacun sait, elles aboutiront à la création de nouveaux parcours universitaires pour les métiers de l'enseignement pour lesquels l'importance de l'épistémologie et l'histoire des sciences et des techniques est sans cesse réaffirmée. Que ce soit par l'élaboration de nouveaux documents, de sites internet, de stages, ou tout autre moyen de communication, les différents ressources produites à tous les niveaux (universitaires, formateurs, corps d'inspection, ...) constitueront une dimension importante du nouveau paysage en formation des maîtres. Mais avec quels contenus ? Et sur quels supports ? Quels usages ?

Les Journées seront l'occasion de faire le point sur les travaux déjà effectués et d'échanger sur les thématiques de recherche qui y sont associées (recherches en histoire des sciences et des techniques, en épistémologie, ou en didactique).

Deuxième partie :

2 et 3 juillet 2009

*History of Science and Technology : Resources and methods
for Inquiry Based Science Teaching (IBST)*

Communication language : English

At the European level (EU research portal [website](#)), the lack of students interest in science or in the scientific careers has led to a call for research projects in science education (the FP7 "Science in Society" program) and the publication of the Rocard Report about Science Education ([website](#)). These recommendations promoted an evolution of teaching methods toward Inquiry Based Science Teaching (IBST) and requested some international comparisons.

The relationships between IBST and pedagogical approaches aiming at the introduction of some historical perspective in science teaching requires further investigations.

Related to the symposium "HST and Education" organized during the 3rd International Conference of the European Society of History of Science (ESHS) ([website](#)), the aim of the colloquium is to launch a reflexion at the international level on the role the training and the research in epistemology and history of science and technology could play in the development of IBST.

Special session :

As part of the "Mind the Gap" research program (an answer to the FP7 call), a workshop will be organized in order to discuss the specific role of Information and Communication Tools (ICT) for the use of EHST in IBST.



Program the workshop

Journées InterREG Formation des maîtres et Ressources en Epistémologie et Histoire des Sciences et des Technologies 30 Juin - 1 & 2 Juillet 2009, I. O. R. M. (Université d'Artois) - site d'Artois (France)		History of Science and Technology : Resources and methods for Inquiry Based Science Teaching (IBST)	
- Mardi 30 juin -			
9h	Accueil	9h	Accueil
9h30	Présentation	9h30	Présentation et coffee
10h	Françoise Romaine-Langlois, Découvrir ou vérifier ? une fol : deux activités bien différentes : exemple Pp/L/S	10h	Marco Zucconati, What is scientific in a scientific inquiry? Genealogy of knowledge as a cure against the temptation of "treasure hunt"
10h40	Bernard Choisy, Formation continue en Histoire des mathématiques : pratiques et questions	10h40	Katherine Cornsler, Science teaching to Francophone minorities in Canada : Inquiry based science teaching combined with discourse enabling strategies
11h20	Francis Baudouin, Bibliothèques numériques : un outil de choix pour la recherche en histoire des sciences et une opportunité pour l'enseignement	11h20	Alain Bernard, Why is it necessary and important to view the question of the role of history of science and technology in the promotion of IBST as a historical one ?
12h	Michal Balazsek, Histoire des sciences et conceptions multiples	12h	Lunch
12h40	Déjeuner	12h40	Workshop : Introduction
14h	Séances en parallèle	14h	Gyula László, Methodology for research in IBST, IBST and ICT : case study in physics
Session 1		Session 2	
14h	Yves-Claude Lequin, Histoire d'une discipline à créer (et à recréer) : La technologie, comme science et philosophie de la technique	14h30	Thomas de Vitoert, Methodology for research in IBST, IBST and ICT : case study in mathematics
14h40	Olivier Burman, La correspondance entre savants : quelles perspectives dans la formation des maîtres et dans l'enseignement ?	15h30	Open discussion : Resources and methods for Inquiry based science Teaching
15h20	Charles Couvel, Actualité épistémologique et didactique du Manuel d'Arithmétique élémentaire de Condorcet (1794)	17h30	Closing cocktail party
Session 2		Session 1	
14h	Nervé Tavtiev, Éléments d'épistémologie pour enseigner l'évolution humaine	9h30	Rafaela Dorozov, Histoire des mathématiques dans un camp d'éété
14h40	Johann-Dieter Koppen, Le musée scolaire d'école : une telle institution à l'enseignement des sciences sous la IIIe République	10h	Stephane Le dans, L'atmosphère comme objet scientifique transdisciplinaire : exemple d'une articulation entre histoire des sciences, formation continue des enseignants et projet pédagogique en lycée
15h20	Laurence Maurin & al., Introduction d'éléments d'Histoire des sciences et des techniques dans les cours de sciences : problématique didactique et applications sur la formation des enseignants	10h40	Marc Boyon, Réflexions personnelles sur les ressources à développer pour la culture scientifique des enseignants
16h	Pause	Session 2	
16h20	Résumé/débat La formation des maîtres en IBST et le groupe InterREG : bilan et perspectives	10h30	Abdelkhalil Metoual, Les représentations d'étudiants en formation des maîtres à l'égard du mode de construction des sciences : étude exploratoire
16h	Cotéval	10h30	Kamal Palmarer & al., Présentation et premières analyses d'un dispositif de formation continue de professeurs de physique et chimie à l'ère de YouTube
Session 2		10h40	Bernard Wolf & al., One pile électrique à Bayard II y a 200 ans ? Analyse critique des sources Internet et travail expérimental pour le collège
14h	Alexandre Heutli, IBST, une bibliothèque numérique d'histoire des sciences	11h	Déjeuner
14h40	Maria Quadi & al., Présentation du projet de brochure sur la matérialité de l'air	11h40	Alexandre Heutli, IBST, une bibliothèque numérique d'histoire des sciences
15h20	Alain Bernard & al., Autour de la brochure « Je suis des nombres » : réflexions d'éditeurs	12h	Pause
16h	Pause	12h40	Résumé/débat Quelles ressources pour la formation des maîtres ?
16h20	Résumé/débat La formation des maîtres en IBST et le groupe InterREG : bilan et perspectives	13h30	Teppa Iltse
16h	Cotéval	Session 1	





Annex II : Workshop Brest, 18th and 19th 2010

S. Laubé (PaHST, University of Brest), T. de Vittori (LML, University of Artois), H. Ferrière (PaHST, University of Brest), O. Bruneau (CREAD & PaHST, University of Brest)



Brest (France), March 18th, 19th 2010

(or March 11th, 12th 2010; or March 26;27th 2010)

Workshop

“Mind the Gap”

History of Science and Technology (HST) :

ICT Resources

and

Methods for Inquiry Based Science Teaching (IBST)

Organization :

PaHST (University of Brest)

CREAD (University of Rennes2/University of Brest)

LML (University of Lille)

LabSTICC UMR CNRS 3192 (TELECOM Bretagne)

Contact for information : sylvain.laube@bretagne.iufm.fr

Organization committee

O. Bruneau (CFV/PaHST), G. Chambon (PaHST), H. Herrière (PaHST), S. Laubé (PaHST), S. Garlatti (LabSTICC), T. de Vittori (LML),



Deadline for abstract submission (see the form to be filled): January 1th

email : bruneauolive@free.fr

First call for paper

At the European level, the lack of students interest in science or in the scientific careers has led to a call for research projects in science education (the FP7 “Science in Society” program) and the publication of the Rocard Report about Science Education¹¹. These recommendations promoted an evolution of teaching methods toward Inquiry Based Science Teaching (IBST) and requested some international comparisons.

The relationships between IBST and pedagogical approaches aiming at the introduction of some historical perspective in science teaching requires further investigations.

Related to the symposium “HST and Education” organized in 2008 during the third International Conference of the European Society of History of Science (ESHS)¹², the objective is to launch a reflexion inside the European research community on the role that the training and the research in history of science and technology has to play in the development of IBST.

As part of the “Mind the Gap” research program (as answer to the FP7 call), this workshop would give a central place to discussions about digital documents and Information and Communication Technologies (ICT). Proposals concerning Semantic Web and ontologies for History of Sciences and Technology and gender of digital documents will be particularly welcome.



¹¹ <http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=1100>

¹² <http://www.oeaw.ac.at/kgnmm/ESHS3rdCongress/Abstracts.html>