

INQUIRE

Raising Standards Through Inquiry: Professional Development in the Natural Environment

Royal Botanic Gardens, Kew

9-10 July 2013

CONFERENCE PROGRAMME



Supported by



Monday 8 July

14:00-17:00 REGISTRATION AND COFFEE

14:30-15:30 KEW TOURS

Tuesday 9 July

09:00-09:30 REGISTRATION

09:30-09:40 WELCOME – PROFESSOR ANGELA MCFARLANE, DIRECTOR OF PUBLIC ENGAGEMENT AND LEARNING, ROYAL BOTANIC GARDENS, KEW, UK

09:40-09:50 DOMESTICS AND LOGISTICS – CHRISTINE NEWTON

09:50-10:25 KEYNOTE

Chestnut Room

PROFESSOR JUSTIN DILLON, KING'S COLLEGE, LONDON, UK

Outdoor science: developing scientific literacy through inquiry

Justin Dillon is professor of science and environmental education and Head of the Science and Technology Education Group at King's College London. After studying for a degree in chemistry, he trained as a teacher at Chelsea College and taught in six inner London schools until 1989 when he joined King's. Justin's research focuses on learning in schools, science centres, museums and botanic gardens. He is co-editor of the *International Journal of Science Education* and in 2007 was elected President of the European Science Education Research Association for a four-year term. He is the co-editor of *Bad Education: Debunking Myths in Education* (Open University Press).

10:25-10:45 KEYNOTE

ASSISTANT PROFESSOR, SUZANNE KAPELARI, UNIVERSITY OF INNSBRUCK, AUSTRIA

INQUIRE for All: what have we achieved and where are we going?

Suzanne Kapelari is Assistant Professor of Education at the University of Innsbruck, Austria. Previously the Head of Education at the University of Innsbruck Botanic Garden, Suzanne was responsible for designing teacher training courses and education programmes. She has a great deal of experience in

creating teaching resources, organising teacher training seminars and evaluating teaching and learning processes. Suzanne has a teaching degree in biology (secondary and high school) and a PhD in Cell Biology. She is the coordinator of the INQUIRE project.

10:45-11:15 COFFEE

11:15-12:00 SPEED NETWORKING

Ash Room

12:00-13:00 SESSION 1 – POSTERS

Ash Room

- **The Botanic Garden of Sóller as an educational tool for introducing environmental education in the formal ambit of Spanish Secondary education**
José Luis Frontera Colom, Sóller Botanic Garden, Mallorca, Spain
- **An adventure back to the Cambrium**
Jorunn Karlsen, Botanic Garden of Oslo, Norway
- **An illustration story on plants evolution: a transdisciplinary BOTANIC GARDEN educative activity**
Joana Gonçalves, Cristina Tavares, University of Coimbra Botanic Garden, Portugal
- **“From the Polar Regions to the schools” - Approaching polar sciences with IBSE**
Maddalena Macario, University of Camerino, Italy
- **Acquirement of scientific terms and vocabulary in IBSE (inquiry-based science education)**
Petra Bucher-Spielmann, Pedagogical University Tirol, Austria
- **Rectangle, triangle, square? Looking for shapes at Nature**
Dolores López Bautista, Programa de enriquecimiento educativo para alumnos con altas capacidades de la Comunidad de Madrid, Spain
- **A Green Laboratory in School Yard**
Diana Koleva, "Vassil Aprilov" School, Sofia, Bulgaria
- **The good Earth, a case study of IBSE in the fourth grade of a primary school**
Renata Attolini, Primary School De Gaspari, Trento, Italy
- **IBSE: Fresh Impetus for Professional Development and Devising New Lessons**

Svetlana Mironseva, State-funded educational establishment of the City of Moscow, Secondary School, Russia

- **A botanical garden as natural laboratory**
Réjane Limet, Botanical Garden of Bordeaux, France
- **Explaining the concept of Inquire Based Science Education through the activity how seeds are dispersed?**
Marina Ferrer Canal, Irene Fernandez de Tejada, María Bellet, Alicia Fernández Rodríguez, Blanca Olivé de la Puente, Real Jardín Botánico, Madrid, Spain
- **IBSE as a Platform for Joint Creativity by Teachers and Students**
Svetlana Buldygina, State-funded educational establishment of the City of Moscow Lyceum, Russia
- **A Pathway to Inquiry-Based (digital) Teaching**
Franz X. Bogner, University of Bayreuth, Germany
- **Why is there no population of fish in the river?**
Majken Korsager, Norwegian Centre for Science Education, Oslo, Norway

13:00-14:15 LUNCH

14:15-15:30 SESSION 2 – WORKSHOP AND PAPERS

Oak Room

Workshop

Inquiry-Based Science Education Outdoors

- **Do we really know what we eat?**
Blanca Olivé, Real Jardín Botánico Juan Carlos I, University of Alcalá, Spain

Beech Room

Workshop

Reflective Practice

- **Improving Reflection skills: a new approach**
Ljuba Pencheva, University of Sofia, Bulgaria

Rowan Room

Workshop

Inquiry-Based Science Education Outdoors

- **Kolibri seeks Bromelia – sparkling IBSE activities**
Doris Elster, Sonja Eilers, Yvonne Matzick, Institute of Biology Education, University of Bremen, Germany

Sycamore Room

Workshop

Inquiry-Based Science Education Outdoors

- **Object exploration as a process of scientific inquiry**
Abigail Hinton, Horniman Museum and Gardens, London, UK

Chestnut Room

Papers

Inquiry-Based Science Education Outdoors

- **How much IBSE is possible during a class visit to a Botanical Garden?**
Jutta Kleber, National Botanic Garden of Belgium, Meise, Belgium
- **How can LOtC provide a change in teaching methodology to promote students' engagement in natural sciences? The Lisbon Botanic Garden as a case study**
Martins-Loução MA., Gaio-Oliveira G., Barata R., Carvalho N., Museu Nacional de História Natural e da Ciência - Museus da Universidade de Lisboa, Jardim Botânico, Portugal, Zoccoli M., CED N^a Sr^a da Conceição, Lisboa, Portugal
- **Processionary caterpillars in January ...?**
Fernanda Filipe, Escola Secundária de Figueiró dos Vinhos, Portugal/ University of Coimbra Botanic Garden, Portugal

Pine Room

Papers

Inquiry-Based Science Education Outdoors

- **What does it look like? Looking at Nature with mathematical eyes**
Dolores López Bautista, Programa de enriquecimento educativo, Alcalá de Henares, Spain

- **Climate change: good or bad?**

Catarina Loureiro, Geology Center of the University of Oporto/University of Minho, Portugal/
University of Coimbra Botanic Garden, Portugal

- **The SBZH Module “Plant and Climate” in teacher training and school**

Dagmar Schlemm, Jörg Ledderbogen, Steinhude Secondary School / School Biology Centre
Hannover, Germany

15:30-16:00 COFFEE

16:00-17:15 SESSION 3 – WORLD CAFÉ

Workshop

Developing Training Courses in LOtC

- **World Café: engaging the participants into an INQUIRE course**

Serena Dorigotti, Costantino Bonomi, Marina Galetto, MUSE, Trento, Italy

Wednesday 10 July

09:00-10:00 KEYNOTE

Chestnut Room

PROFESSOR DORIS JORDE, NORWEGIAN CENTRE FOR SCIENCE COMMUNICATION, OSLO, NORWAY.

What is this thing called inquiry, and why is it so important for teaching and learning science?

Doris Jorde is Professor of Science Education at the University of Oslo and is currently Director of the Norwegian Centre for Science Education. She was the leader of the “Mind the Gap” EU project and participated as scientific advisor for the EU S-TEAM project- both exploring ideas of IBST in teaching and learning. She is a past president of the European Science Education Research Association from 2003-2007.

10:00-11:15 WORKSHOP AND PAPERS

Rowan Room

Workshop

Inquiry-Based Science Education in Practice

- **“Will there be any sea level rise because of climate change?” Experiments and inspirations - Working like a scientist**

Anke Malethan, Jörg Ledderbogen, Regine Leo, School Biology Centre Hannover, Germany

Sycamore Room

Workshop

Inquiry-Based Science Education Outdoors

- **What we can Learn by Measuring Plants and Mobile Application for Assessing Asymmetry Fluctuation in Tree Leaves**

Ivan Smirnov, Alla Andreeva, Moscow State Center for Youth, Russia

Beech Room

Workshop

Inquiry-Based Science Education Outdoors

- **Sow, see, smell, taste and cooperate**

Kristina Bjureke, Natural History Museum, University of Oslo, Norway

Outdoor

Workshop

Inquiry-Based Science Education Outdoors

- **Inquiry and Assessment. Are they mutually exclusive?**

Sue Hunt, Royal Botanic Gardens, Kew, London, UK

Pine Room

Workshop

Inquiry-Based Science Education in Practice

- **IBSE activity on textile plants and fabrics**

Francesca Pugni, Bergamo Botanical Garden “L.Rota”, Italy”

Chestnut Room

Papers

Professional Learning Communities

- **Inquiry-based Biodiversity Teaching in pre-service teacher education - a contemporary approach using mobile devices to support location-based learning**
Steffen Schaal, Ludwigsburg University of Education, Germany
- **Developing on-line communities of practice via subject oriented resource gateways, e-forums & social media**
Costantino Bonomi, Matteo Cattadori, MUSE, Museo delle Scienze, Trento, Italy
- **GreenNET - Towards the Formation of a Teachers' Network on Environmental Education through Inquiry and Technology**
Vassiliki Markaki, Ellinogermaniki Agogi, Greece

11:15-11:45 COFFEE

11:45-13:00 SESSION 5 – PRESENTATIONS

Rowan Room

Reflective Practice

- **How and What to Teach about Biodiversity?**
Alla Andreeva, M. V. Lomonosov Moscow State University Botanic Garden, Russia
- **Investigation around the pollen**
Claudine Pierre, Collège François-Truffaut, Saint-Martin de Seignanx, France
- **IBSE as an approach to reduce the gap between young people and green world: an Italian experience.**
Francesca Pugni, Gabriele Rinaldi, Bergamo Botanical Garden "L.Rota", Italy

Beech Room

Students' Perspectives on IBSE

- **The pedagogical value of genuine inquiry.**
Dominik Katterfeldt, Botanical Garden University Würzburg, Germany

- **The use of IBSE for improving science literacy and education at MNHNC**
Raquel Barata, Museu Nacional de História Natural e da Ciência - Museus da Universidade de Lisboa, Portugal
- **The Garden of Stairs**
Anne Birkeland, Department of Outreach Natural History Museum, University of Oslo, Norway,
Annelise Bothner-By, Departement of Design, Oslo National Academy of the Arts, Norway

Chestnut Room

Evaluation of IBSE

- **Fostering INQUIRE through Evaluation Capacity Building**
Fabio Dovigo, Vincenza Rocco, University of Bergamo, Italy
- **Course INQUIRE for Teacher Students - What is its impact?**
Doris Elster, Tanja Barendziak, Frederike Haskamp, Lena Kastenholz, Institute of Biology Education University of Bremen, Germany
- **A case study: “Can children interlink specific modules/activities with each other on the one hand and with the overall/ all-encompassing scientific question on the other hand?”**
Elisabeth Carli, Grüne Schule Botanischer Garten Innsbruck, Austria
- **Aftermath of the two editions of INQUIRE training course in IBSE methodology at COIMBRA BOTANIC GARDEN**
Cristina Tavares, Coimbra Botanic Garden, FCTUC, Portugal; *Susana Silva*, Research Centre (CEGOT)-Coimbra University, Portugal; *Teresa Bettencourt*, Research Centre (CIDTFF), Aveiro University, Portugal

Pine Room

Reflective Practice

- **Professional Learning Communities/Communities of Practice implementing Inquiry Based Science Education (IBSE) in- and outside the classroom**
Jakob Egg, Grüne Schule, University of Innsbruck, Austria
- **Teachers’ reflections on the meaning of IBSE: a question of autonomy**
Fran Riga, Faculty of Education, University of Cambridge, UK
- **Understanding the Multi-Dimensional Role of Reflection in the Educational Process: the Natural Europe Experience**
Vassiliki Markaki, Ellinogermaniki Agogi, Greece

13:00-14:15 LUNCH

Ash Room

- **Yesterday, Today and Tomorrow**
Anabela Magalhães, University of Coimbra Botanic Garden, Portugal
- **From Reflection to Research**
Inessa Voynova, State-funded educational establishment of the City of Moscow Education, Russia
- **COInquire Platforms: sustainable approaches for Educative Resources dissemination**
Joaquim Santos, Cristina Tavares, University of Coimbra Botanic Garden, Portugal, *Teresa Bettencourt*, Department of Education, University of Aveiro, Portugal
- **Botany at School: Learning to Observe Plants in a School Environment**
Jose Pedro Marín, Faculty of Education, University of Murcia, Spain
- **IBSE: New Educational Opportunities and Resources for Students and Teachers**
Svetlana Soboleva, State-funded educational establishment of the City of Moscow, Secondary School No.1344 for in-depth study of biology and chemistry, Russia
- **Collaboration among institutions to run teacher training courses**
Alicia Fernández, Blanca Olivé, Irene Fernández de Tejada, María Bellet, Marina Ferrer, Real Jardín Botánico Juan Carlos I, Universidad de Alcalá, Spain
- **Locate the invader**
Alfredo Cosculluela, Juan de Valdes, Spain
- **What did the dinosaurs eat?**
Gro Hilde Jacobsen, Natural History Museum Oslo, Norway
- **Taking IBSE approach into Italian secondary school: the challenge of innovation**
Barbara Scapellato, School of Science and Technology, Geology Division, University of Camerino, Italy
- **Watch/Judge/Act in Arboretum Luis Ceballos**
Elda Carmona, Felipe Castilla, Arboretum Luis Ceballos, Comunidad de Madrid, Spain
- **Study of the impact of climatic factors and habitat**
Milena Yakimova, University of Sofia, Bulgaria

- **Inquiry by levels in the classroom**

Jose Luis Olmo RÃ Squez, Ies Guadiana, Ciudad Real, Spain

- **A result of the INQUIRE teacher training - The medicinal plant module**

Roland Wozniowski, Annette Reisenweber, Christina Siefert, Botanika, Bremen, Germany

15:30 – 16:00 COFFEE

Chestnut Room

16:00-16:30 PROFESSOR ANGELA MCFARLANE, ROYAL BOTANIC GARDENS, KEW, UK

Where will our curiosity lead us next?

Angela McFarlane leads the Public Engagement and Learning Team at the Royal Botanic Gardens, Kew, leading on strategy and successful delivery of the public offer at Kew; online, in print and in the Gardens. Angela specialises in real and virtual experiences of Plants and Plant Science that delight, engage and educate mass audiences. As a Professor at the University of Bristol she led the Graduate School of Education. She has designed and directed a number of highly successful educational software development projects and the resulting interactive resources all became commercially successful products. Her research has investigated the role of digital technologies in science education, including addressing misconceptions through dynamic representation, and has included work with national evaluation projects in the UK, an international review with the OECD and consultancy at government level in Chile, Brasil and Singapore. Angela is a graduate from the Bristol School of Biological Sciences, where she also obtained her PhD. She has been a school science teacher, a director of the UK government agency for educational technology and served on the boards of Teachers' TV and Futurelab. Her international work has included school and government level projects in SE Asia, The Middle East, India, South America, Denmark and Norway. She maintains an active interest in research into informal science learning, working with PhD students in the UK and Chile and is a Visiting Professor of Education at the University of Bristol and King's College London.