

ICA/CET Commission on Education and Training - quadrennial report – Nov. 2015

The Commission on Education & Training (CET) was re-elected by the ICA General Assembly in Paris in 2011, with Dr David Fraser (Australia) as chair and Dr David Fairbairn (UK) as vice-chair. The expectation that the vice-chair would succeed to the chair's position after Dr Fraser retired was fulfilled when Dr Fairbairn became chair in July 2012. The Terms of Reference (ToR) approved in Paris retained their validity after the change of leadership. Prof Necla Ulugtekin (Turkey) volunteered to become the new vice-chair.

The ToR collectively addressed the three basic functions of the CET: to monitor educational provision in the field of cartography; to advise on and to deliver educational material in varying arenas; and to consider the impact of generic research and experiences in education at all levels. CET (2011-2015) has addressed its ToR by maintaining an overview of cartographic education worldwide; by delivering presentations, papers, workshops and contributions to other programmes, which focus on educational material in the subject of cartography; and by investigating and reporting on technologies, concepts and methods of educational and training courses.

Presentations by members of CET have been delivered in a variety of venues. The Paris 25th International Cartographic Conference (ICC) included several sessions devoted to education at all levels, from kindergarten to CPD, moderated by the CET, and other ICA Commissions with educational interests. One year later, a keynote by the Chair to the GeoCart2012 conference in Auckland, New Zealand (September 2012), was one of several educational contributions to that meeting. A number of sessions within the 26th ICC held in Dresden, Germany, (August 2013) were directed specifically to education with over 20 papers given; and the 2015 ICC to be held in Rio de Janeiro, Brasil, will also have a full range of presentations on the themes of education and training. Commission members have delivered presentations on educational content and methods of delivery to international meetings organised by the International Society of Photogrammetry and Remote Sensing (ISPRS) (e.g. its 22nd Congress, 2012, Melbourne, Australia: presentation by Cartwright and Fairbairn at <http://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XXXIXB6/83/2012/isprsarchives-XXXIX-B6-83-2012.pdf>), by the Bulgarian Cartographic Association (e.g. 5th Jubilee Conference on Cartography and GIS, Riviera, Bulgaria: presentation by Basaraner, Ulugtekin et al. at http://cartography-gis.com/docs/bca/5ICCandGIS_Proceedings.pdf), and by ESRI (e.g. 2014 ESRI Education GIS Conference, San Diego, USA: presentation by Robinson at <http://proceedings.esri.com/library/userconf/educ14/index.html>).

Many of these presentations have been worked up into Papers, published in conference proceedings (as above) and also in more formal publications. The Paris ICC printed outputs were published as two books by Springer: Vol 2 (<http://www.springer.com/us/book/9783642192135>) has a section on Map, GIS and Education with five chapters covering aspects of education from tools for teaching GIS, to designing graphical icons for school cartographic education. The volume Cartography from Pole to Pole (<http://www.springer.com/us/book/9783642326172>), presenting the highlights from the Dresden ICC, has four chapters specifically devoted to education.

During the 2011-2015 period, CET has been involved in several Symposia, organised in conjunction with other groups. 'Sharing Knowledge' was presented as a pre-conference (ICC) meeting in Dresden, Germany, in August 2013. Several ICA Commissions – CET, Cartography & Children, Maps & Graphics for Blind & Partially Sighted People, and Planetary Cartography – joined to address topics of common interest (<http://lazarus.elte.hu/jointsymposium2013/docs/proceedings.pdf>). A joint meeting with the CET equivalent of ISPRS was held in Wuhan, China, in May 2014. Primarily organised by CET Commission members Profs Jianya Gong and Huayi Wu, who also lead ISPRS Commission VI, this event

addressed a range of topics related to education in the geospatial sciences. Publications arising from this event include a volume of the ISPRS Archives (<http://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XL-6/index.html>) discussing educational topics of relevance to cartography and geospatial science, and a volume of the ISPRS Annals (<http://www.isprs-ann-photogramm-remote-sens-spatial-inf-sci.net/II-6/index.html>). CET was also formally represented at the annual meeting of the Association of American Geographers, which met in Chicago, USA, in April 2015, where special sessions on education, and meetings on renewing the Body of Knowledge, were held. Publication of some of the presentations at this meeting will form the core of a forthcoming issue of the journal *Cartographic Perspectives*, guest-edited by the Commission chair.

A joint symposium of CET, with the ICA Commission on Maps & the Internet, will be presented as a pre-conference (ICC) event in Curitiba, Brasil, in August 2015. This will incorporate a first day workshop on Mapping in the Cloud, delivered by Prof Michael Peterson, and, on the second day, a range of presentations on common topics related to the web and education. Formal knowledge transfer in the form of Workshops also formed one of the ToR of CET. In Wuhan, China, in May 2014, a practical hands-on 5 day workshop was delivered, in conjunction with the ICA Commission on OpenSource Geospatial Technologies. Prof Jorge Rocha, Portugal, assisted by Dr Zhijie Zhang, China, and the CET Chair, delivered a well-received set of integrated exercises to over 35 students from China, Russia, India and the Philippines. Further workshops of this type should be delivered: a possible future event is being planned for late 2015 in the Maldives, Indian Ocean.

In terms of further Projects, CET is intimately involved in the roll-out of the UN-endorsed, and ICA-managed, International Map Year (IMY). The Chair of CET is on the IMY Working Group, and has contributed a chapter, with exercises, on 'Education in cartography' in the online textbook. The World of Maps (also translated into French, Spanish and, soon, Chinese) (www.mapyear.org). CET was consulted (2014) on planned curricula for the African GeoSpatial Sciences Institute (Tunisia). The activities of the Commission have been reported regularly in ICA News and in the ICA page of GIM International magazine. Reporting of issues related to education and training is also evident in the monthly editions of eCarto News, prepared by David Fraser and incorporating items trawled from the web, of general interest to all cartographers around the world. eCarto News, available on the main ICA website (www.icaci.org), grew out of the regular newsletter about educational and associated topics which David compiled during his chairmanship of CET 2007-2012 (all available on the Commission's website at <http://lazarus.elte.hu/cet/newsletter/newsstart.htm>). Our outreach is enhanced by the website (<http://lazarus.elte.hu/cet/>), still maintained by Prof Laszlo Zentai, previous Chair of the Commission, and now Secretary-General of ICA.

The biennial Business meeting of CET, at the ICC in Dresden, was a valuable 'mid-term' check on progress. This meeting, attended by many Commission members, included open discussion on further capacity building in developing countries, sources for online materials, commission publications, inter-society collaboration, cartography in high schools, emerging technologies, mapping competitions, the Commission's web site, and membership of the Commission. These topics helped inform Future plans for the Commission, with modified ToR (2015-2019) addressing these fundamental topics, along with curriculum development, research training in cartography, best practice in promoting cartography in universities, and development of online courses.