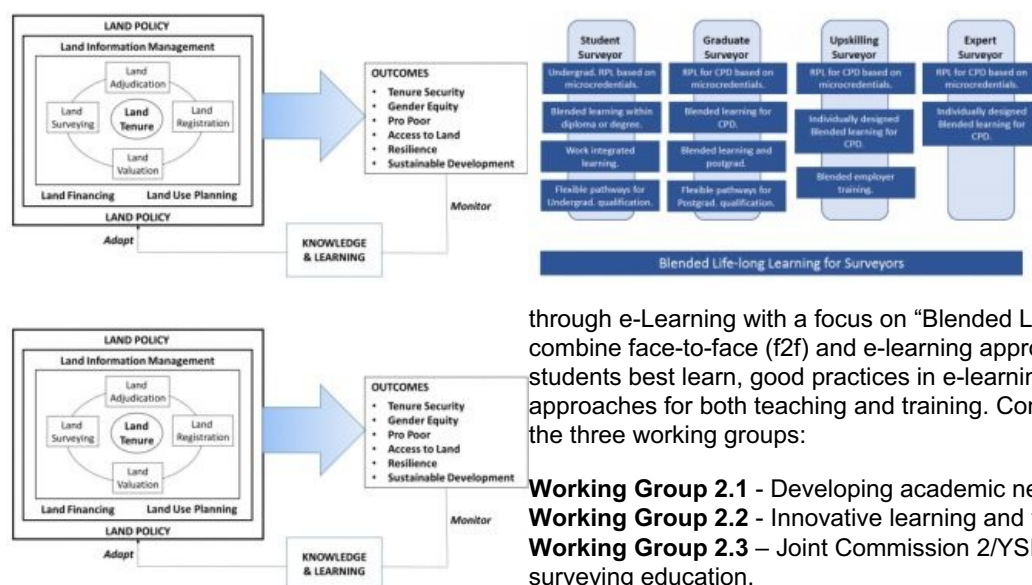*FIG COMMISSION 2: PROFESSIONAL EDUCATION*

COVID-19 Responses and FIG2020: Lessons for Surveying Education

The focus of FIG Commission 2 is on innovative and effective professional education and training for surveyors. This involves curriculum development, innovations in teaching and learning, life-long learning, attracting new students, and continuing professional development (CPD). A key aim of this term is to update the FIG Commission 2: FIG Publication No. 46. Enhancing Surveying Education through e-Learning with a focus on "Blended Learning" and better understanding how to combine face-to-face (f2f) and e-learning approaches. We seek to understand how current students best learn, good practices in e-learning, and in blending f2f and e-learning approaches for both teaching and training. Commission 2 work plan is delivered largely by the three working groups:

Working Group 2.1 - Developing academic networks for knowledge sharing.
Working Group 2.2 - Innovative learning and teaching / "Curriculum on the Move".
Working Group 2.3 – Joint Commission 2/YSN working group - Learning styles in surveying education.

Commission 2 promotes high quality professional education that is fundamental to the aspirations of FIG2020 – "Smart surveyors for land and water management". Most FIG2020 Commission 2 technical session papers contribute to the sub-theme "Smart Surveyors", others illustrate the importance of educating surveying students about the major global drivers including the SDGs. These papers are relevant to the sub-theme "Ten years to go to achieve the Sustainable Development Goals".

During 2020, there have been significant developments in surveying professional education due to the COVID-19 restrictions. Globally, many surveying academic institutions were required to adapt to these restrictions by moving their learning and teaching completely online. This has presented a range of challenges as we grappled with which learning management system and video communications platforms we would use. We considered how to reach those students without adequate internet connection or with poor ICT quality. We considered the implications for those tasks that were heavily based around face-to-face contact – for example field practical projects, computer lab sessions, and cartographic design projects.

Out of this has come some excellent lessons for blended learning and we should take the opportunity to capture lessons and share the experiences with others. This presents an opportunity for discussions in webinars later in 2020, as well as for the FIG Working Week in 2021.

What were the highlights of the Commission 2 technical sessions?

Commission 2 was very well represented with five technical sessions and 28 papers submitted. While several papers were global in nature, it was pleasing to receive papers on surveying education good practice with examples from all regions (nine from Europe, six from Asia and the Pacific, two from Africa, and one from North America). Themes explored were innovative approaches to teaching (6 papers), blended learning (5 papers), curriculum development (3 papers), and exploring strengthening academic networks (3 papers). Commission 2 overarches the other commissions who also are interested in education. Most of the other commissions were represented in the education topics covered with eight papers related to Commission 7, seven to Commission 3, five to Commission 5, four to Commission 8, and one to Commission 9.

TS01A: Blended Learning and Innovations in Professional Education

This session highlights innovative practices in blended learning. The papers submitted were written before the outbreak of COVID-19 and so reflect the practice at that time. They provide a useful base to reflect on how our approaches to online learning have changed due to our responses to COVID-19.

There are seven papers in this session, with two providing high level discussion on blended learning for life-long learning generally, and through a case study in Indonesia. Other papers provide case studies of innovation through using the "Universal Design for Learning" framework, online learning using smart phones, using cartographic tasks and geodetic exercises to aid learning in C++ programming, and incorporating BIM in surveying programs.

Blended learning at different stages of life-long learning (source: paper 10599 by David Mitchell (Australia), Winnie Shiu (Hong Kong SAR, China), Stig Enemark (Denmark) and James Kavanagh (United Kingdom in session TS01A).

TS02A: Innovation in Professional Education in Europe

This session highlights innovative practices in Europe. These include how education is evolving, institutional approaches, the use of technologies in teaching, approaches to curriculum, and the role of industry in education.
Three papers were case studies involving innovative approaches to blended learning, and three looking at curriculum development, continuing professional development and accreditation. Two high level papers provide a review of changes in e-learning practices and discussion on teaching students about the major global issues and sustainable development challenges. Also highlighted were training that allows students to select an individual training trajectory (using full day learning, e-learning, webinar technology), the use of the 4E-model for Value Creation to solve global challenges (explore, engage, elaborate, evaluate), and a virtual education case study.

TS04A: Regional Academic Networks and CPD /Innovation in Professional Education
(Joint Commission 1 and 2)

Experience has shown that regional networks of academic institutions supports knowledge sharing in areas of education, research and capacity development. This session includes 4 papers and helps inform Working Group 2.1. It focusses on the role of regional academic networks in improving capacity building in professional education, training and professional development, with good examples of promoting surveying to future students.

The papers discussed strengthening CPD to ensure international alignment of competencies, scaling up academic networks in Africa to support knowledge exchange and collaboration, and programs to "get Kids into Survey". Regional academic networks are important in collaboratively improving curricula, promoting innovations in education, facilitating collaborative teaching and learning through staff and student exchange, and collaborative research writing and community outreach. However, capacity building in academic networks needs to be ongoing.

Sessions in partnership with UN FAO and GLTN

TS03A: FIG Academic Forum on VGGT - VGGT and the UN Convention to Combat Desertification into the implementation of the Convention **(Joint FAO and FIG session)**

Since the FIG Working Week in Christchurch the UN FAO and FIG have held a joint "Academic Forum" in the yearly Working Weeks and Congresses. This is a very important ongoing Commission 2 partnership and collaboration with UN FAO. The 2019 session was planned as a series of presentations and a floor discussion on how land administration and land management (based on the VGGT) can help address land degradation, soil erosion and desertification through showcasing case studies. It was anticipated that this session would explore three questions:

1. Why VGGT principles through LA/LM are important to apply in Survey, Spatial planning and to integrate into Land Degradation Neutrality framework (LDN)?

1. What are the possibilities and available tools to consider as good practices and lessons learnt for the use of such approaches (VGGT and LDN) in sustainable Land Management and Land Administration?

1. What are opportunities within university research and continuous professional development courses to apply the VGGT and integrate those in LDN?

The aim was a better understanding on possible ways and opportunities to strengthen university research and continuous professional development courses in informing surveyors about their role on how surveying and spatial data (e.g. maps, cartography) play a key role for achieving sustainable LM. In addition, it will help to identify good practices and lessons learnt based on the VGGT framework, including in Land Administration (LA)/Land Management (LM) instruments to address Land Degradation Neutrality (LDN).

TS05A: Responsible Land Administration Teaching Essentials
(Joint Comm 2 and 7)

Current educational programmes in land administration (and related subjects) must adapt in a responsible way to support global challenges consistent with international goals and instruments. Understanding all forms of land tenure systems is needed to ensure locally realistic or fit-for-purpose development outcomes. Also important is ensuring that land administration education can bridge the divide on health-land nexus of development at different levels. These are the bases for the emerging concept of Responsible Land Administration structured teaching materials being prepared by the International Training and Research Cluster of the Global Land Tool Network (GLTN) in collaboration with FIG Commission 2.

Conceptual Framework for Responsible Land Administration (Source: Grenville Barnes).

A special session entitled, **A structured foundation for teaching and training land actors in responsible land administration**, was scheduled during the cancelled FIG Working Week 2020 in Amsterdam. The papers submitted focus on (i) core values and principles of RLA, (ii) land tenure security, RLA is practice, land policies and regulatory frameworks, and participatory land-use planning and management.

The papers support the rollout of the already developed structured teaching essentials to enable universities and research institutes hosting land administration (and related programmes at the diploma, bachelors and master levels) have access to updated teaching essentials for direct use in their classrooms or institutional curricula improvement. To ensure that these teaching essentials are effectively rolled out and accessible in 2020, plans to hold a webinar on the structured teaching essentials (e.g. conduct a webinar using Zoom or GoToWebinar) are under discussion. In the meantime, they are already accessible via the e-learning platform of GLTN (via **https://elearning.gltn.net**). The platform is a global platform that gives open-source access to courses and learning resources designed to help learners understand and use a selection of our land tools. The platform is device friendly (users can access anytime and, on any tablet, or smartphone device).

It is expected that more modules on responsible land administration would be developed to ensure that teaching materials are made readily available to teachers and students globally. This is important to ensure a more effective and result-oriented land administration education around the world, especially in developing countries.
Announcement upcoming events / meetings / developments

Due to the COVID-19 restrictions in place, all Commission 2 events in 2020 will be online webinars.

Presentation at Young Surveyors Virtual Conference in May 2020. On May 9th, Commission 2/YSN working group 2.3 member Chethna Ben will present on "Education and Learning styles" at the Asia edition of the of the FIG Young Surveyors Network Social Distancing "virtual" conference and webinar series. A similar workshop had been planned for the YSN during FIG2020, and it provides an opportunity to update on the progress in the Working Group 2.3 project on surveying student learning and studying approaches.

GLTN/FIG International webinar - Responsible Land Administration Teaching Essentials. This is a webinar to be organised by the Global Land Tool Network, and FIG Commissions 2 and 7. To be held in the last quarter of 2020.

Commission 2 International webinar – What are the lessons from COVID-19 for blended learning? To be held in the final quarter 2020.

Commission 2/YSN international webinar on "Surveying Students Learning and Studying Approaches". This webinar will (i) discuss this project of YSN/Commission 2 working group 3, and (ii) present the findings of a pilot questionnaire. To be held in the final quarter 2020.

Conclusions

As we reflect on the terrific lessons shared in these FIG2020 papers, and how our approaches to online learning have changed due to our responses to COVID-19, we are in a unique position to move forward in our use of blended learning. We have seen rapid development in the online platforms and technologies available and, more importantly, our ability to use them to achieve effective learning. We have also learned that there are a range of learners who all learn differently. Not everyone is suited to online learning, while some are more comfortable learning only using online materials. A key challenge we face is to develop approaches and pathways that cater for these different learning needs. As we head towards FIG 2021 (now planned for Amsterdam) we need to capture our experiences and discuss what this means for professional education going forward. At that event there is an opportunity to consider what professional education will look like in the future.

Further readings:

FIG Working Week 2020 Proceedings
FIG Surveyors Reference Library
FIG Peer Review Journal

FIG Commission 2 Sessions:

- **TS01A: Blended Learning and Innovations in Professional Education**
- **TS02A: Innovation in Professional Education in Europe**
- **TS03A: FIG Academic Forum on VGGT - VGGT and the UN Convention to Combat Desertification into the implementation of the Convention** (Joint FAO and FIG session)
- **TS04A: Regional Academic Networks and CPD /Innovation in Professional Education** (Joint Commission 1 and 2)
- **TS05A: Responsible Land Administration Teaching Essentials** (Joint Comm 2 and 7)

FIG Commission 2 website:

- **General**
- **Work Plan 2019-2022**
- **Working Groups**
  - **Working group 2.1 – Developing academic networks for knowledge sharing**
  - **Working Group 2.2 – Innovative learning and teaching / "Curriculum on the Move"**
  - **Working Group 2.3 – Joint Commission 2/YSN working group - Learning styles in surveying2 education**