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Volunteering for the future – Geospatial excellence for a better living

Lessons from the COVID-19 Pandemic: Staff and Student Perspectives (11757)

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Thanks to all co-contributors of FIG Commission 2, Section 2 Enhancing Surveying Education through Blended Learning, in particular: Michael Mayer (Germany), Chethna Ben (Fiji), Francis Roy (Canada)

Background

- COVID-19 pandemic impacted severely on the training of young surveyors - Emergency Remote Teaching (ERT)
- This accelerated the transformation towards the implementation of a blended learning approach.
- The effectiveness of this approach was assessed in a number of dedicated student and staff surveys.
- Challenges faced by staff during the ERT will inform the development of successful blended learning approaches in the future

Methodolgy - Surveys

DVW – Germany

German professional association of Surveying – Society for Geodesy, Geoinformation and Land Management

Period: March – July 2020
Participants: 1,500
Focus:

- Working from home.
- Communication processes
- Teaching and learning Completeness of programs
- Exams
- Level of satisfaction

TUDublin (Ireland)

Technological University Dublin, Ireland, School of Surveying and Construction Management (SSCM)

Period: Sept. 2020 – April 2021
Participants: 510 students
Focus:

- Teaching, learning
- Assessment
- Technology ICT
- Students' experience

FIG – Commission 2

Period: 2020 - 2021
Participants: 180 from 17 countries
Focus: Students' learning strategies:

- What is learning
- Approach to studying
- Preferences for different types of courses and teaching
- Personal perceptions

Case Study - Université Laval Canada

Findings

DVW, TUD and FIG survey summarised from the perspective of both the learner and the teacher in:

i. **Learning and Teaching**
ii. **Assessment**
iii. **Technology (ICT)**

Assumptions

ERT during COVID-19 altered the opportunities for Communities of Practice (CoP) and amplified challenges for students, irrespective of the student background.

Online Learning Findings

1. During 2020 and 2021, many universities were able to offer theoretical programme material online directly using a Learning Management Systems (LMS) and Virtual Learning Environments (VLE) such as Blackboard, Canvas, Moodle.

2. Collaboration platforms (e.g., MSTeams), web- and cloud-based tools (e.g., zoom, jitsi, overleaf, google-docs, etherpad, mentimeter, pingo, padlet) were applied in online teaching.

3. Hardware tools (e.g., interactive pen tablets) were also adopted for interactive teaching.

4. Increasingly flexible new settings for teaching (e.g., asynchronous teaching: additional channels for continuous communication and feedback) as well as for student advice were experienced and developed.

5. In most places, the structural switch from classroom to online teaching was implemented quickly. 74% of surveying lecturers in Germany achieved this within two weeks (DVW)

Benefits of asynchronous online learning

80% (TUD) and 77% (FIG) students used recorded content to review and revise course materials.

73% (FIG) students found short videos (2-8 minutes) useful to familiarise with the topic or complete assessments.

90% (TUD) found the range of additional online materials supportive of their learning

St**udent preference**:

- Strong student preferences for onsite face-to-face education.
- 40% of students (TUD) would like to retain some element of online learning.
- 76% (FIG) they learn better if they are doing an activity in class.
- 86% (FIG) prefer 'blended learning'
- Where the learning mode is online strong preference for having the option to have asynchronous learning.

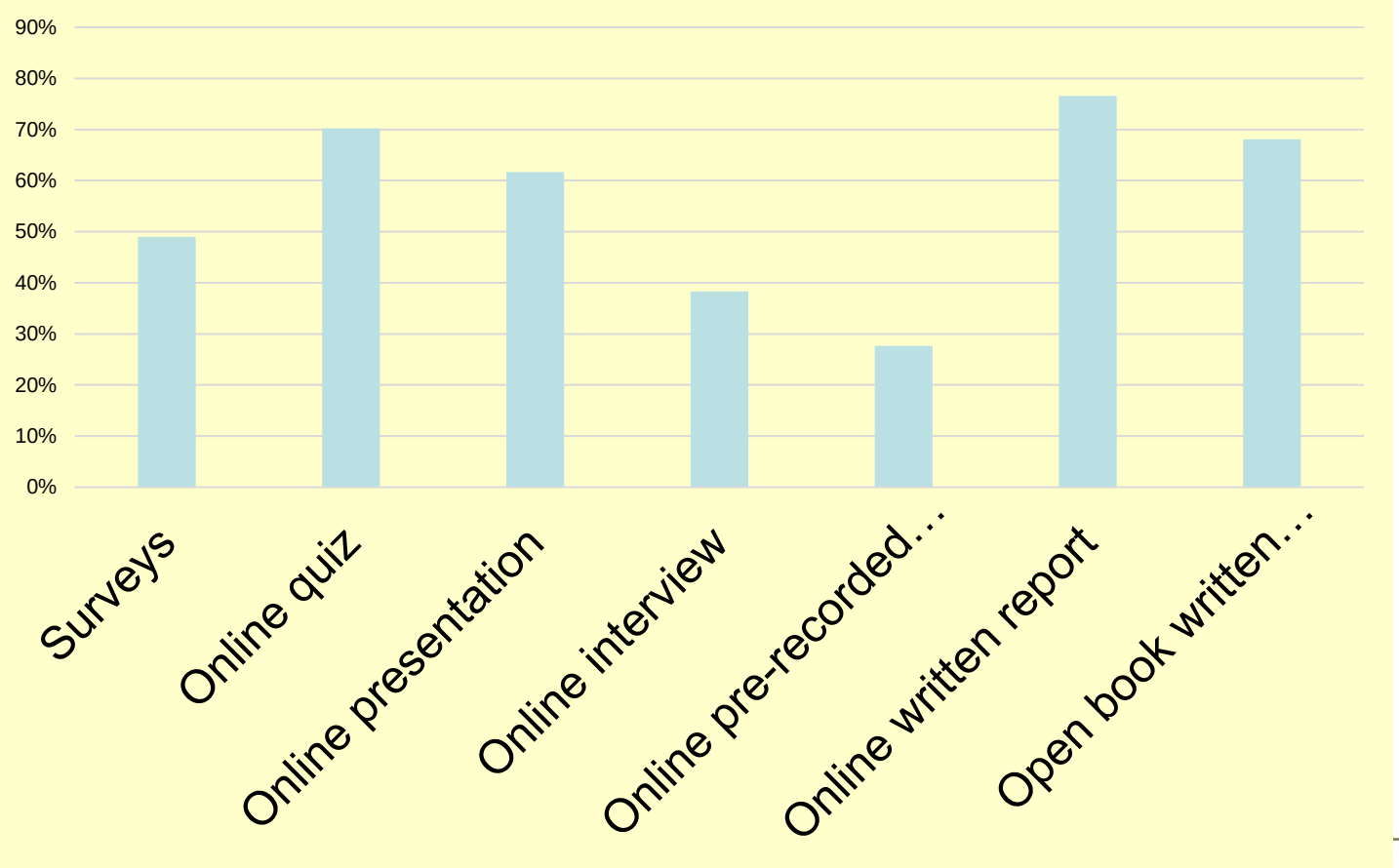
Online Teaching

- Challenging time for academic staff.
- Dedicated pedagogical and technical support required for programme development and delivery required.
- Blended learning is very time consuming and challenging to deliver in a way that includes quality face-to-face and active learning.
- Further pedagogical qualifications and/or guidelines required for non academic lecturers (e.g., public service, private companies) in the areas of: feedback, online interaction, monitoring of self-regulated online-learning, need to be developed (DVW).

Assessment

- Traditional assessments include closed book invigilated written examinations, in person oral examinations and presentations and practical tests.
- Alternative modes of assessments adopted included time limited online open book examinations, online multiple choice questionnaires (MCQs), online presentations and oral examinations amongst other things.
- In Germany the transition from in-person to online oral examinations was successful (DVW).
- 76% (TUD) students' found online assessment methods effective in demonstrating their knowledge.
- 70% (TUD) found online assessment to be less stressful than traditional in-person assessment methods.

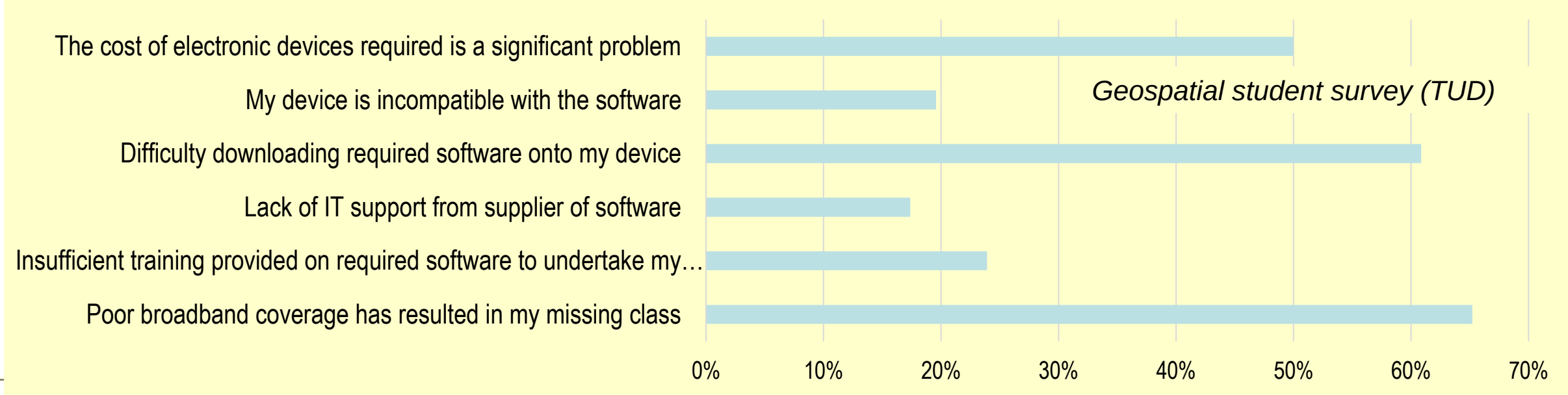
Online assessment methods accessed by (TUD) surveying students.



ICT issues for students

- Technology and its availability and connectivity is a major driving force behind successful blended learning programmes.

- Remote students in the Global South particularly challenged e.g. The University of the South Pacific has 12 member countries and 14 campuses across the region (FIG).



ICT issues for staff

- Staff had to also upskill extremely quickly in the use of technology.
- Software was more user friendly than anticipated.
- Limiting programme material dissemination and communication platforms to a couple of platforms (Moodle, MS Teams etc.) was beneficial.
- The availability of hardware (e.g. additional screens, headsets, video, cameras) issues were inhibitors to successfully delivering programs online.

Case Study - Université Laval Québec, Canada

- Distance learning already well established.
- COVID-19 required Université Laval review its “traditional” approach of distance learning.
- The transition to blended learning greatly facilitated by use of a high-performance technological platform (University Portal).
- Successful implementation of blended learning strategies is also based on the voluntary participation of teachers and trainers.
- Students must have the capacity to adapt and to familiarize themselves with new learning environments and adopt strict discipline, be autonomous and create with their colleagues a new learning community and network.
- Face-to-face teaching should no longer be considered the default mode. Its selection must be justified according to specific training objectives.

Lessons from the DVW, FIG and TUD studies

- Need for clever timetabling solutions, which facilitate simultaneous on- and off-site programme delivery.
- Need for dedicated teaching rooms with screen casting and video equipment as standard.
- A single learning portal (LMS or VLE) with the possibility of remote login facilities for students to access required software and data storage facilities.
- The importance of the practical 'learning by doing' elements of the surveying curriculum cannot be delivered in an online environment.
  - Necessary to isolate practical modules and deliver these in discrete blocks rather than weekly timetabling.
- The pivot to online assessment was successful and effective
  - maintained the integrity of the survey qualification,
  - required a significant effort by educators in a very short time frame.

Conclusion

- A greater understanding of individuality and diversity of students in their home countries was experienced during COVID-19.
- These survey outcomes are a good basis for development, integration and acceptance of blended teaching settings.
- During the COVID-19 pandemic an overall satisfaction rate in programme delivery and assessment was found.
- Access to course materials in an online educational platform is essential.
- Improvements in blended teaching should include the development of new and interactive course materials and a redesign of assessment strategies suited to the current environment where information is almost always available online.
- Considerable time, effort and skills are required by teachers in developing appropriate online programme material and maintaining learner engagement.
- Online learning does not work for every student for various reasons and much of survey education will continue to require face-to-face interaction, supported by online resources under a blended learning model.

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