Post Event Document: Summary and Next Steps

Event Host:

Organizing Partner:

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Event Date:
December 10th, 2020, 11:00AM - 4:00PM EST

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Introduction

In response to the recommended protocols associated with the COVID-19 pandemic, the 2020 GACIP Summit was moved entirely online. The shift allowed this previously regional event to be opened up to a national audience and reimagined as a one day conference considering both GACIP concepts and broader questions associated with the results of the forced experimentation that has taken place as engineering programs nationwide were forced to move to completely remote delivery.

Rebranded as GACIP Summit Plus in light of the changes, it took place on December 10, 2020 and was a free event. We had a total of 92 participants from over 30 institutions across the country join us throughout the day.

This post-event document provides:

- a top-level summary a concise overview of the event itself, with expansion options for more detailed descriptions
- links to full session slides and recordings,
- and summaries of key takeaways and next steps.

Event Platform Notes

Given how many groups are dealing with shifting to on-line events, our expectation was that there would be many user reviews and feedback available. This was not the case.
Our event was free, and the EGAD group operates with a lean budget. Most of the better known and highly rated platforms require the purchase of an annual license, which meant they were cost prohibitive. There are a multitude of online platforms available for events such as this, all with varying costs, usability, and features. After conducting research on various other options, we chose the Accelevents platform as it both fit within our budget, had promising user feedback, and seemed to offer the interactive conference experience we were looking for.

Setting up for the event itself was quite smooth. The User Interface (UI) was intuitive for the organizers, and the customer support from Accelevents was fantastic: their response time was quick and they were well informed.

Things did not go as smoothly when it came to preparing our speakers and participants. The Accelevents-provided support information proved insufficient to instill confidence and so our organizing lead created additional user guides to facilitate use of the platform (available upon request by contact the organizing lead). Even after this additional step, we still had several participants who experienced technical difficulties. Our conclusion was that it would be worth sending out the information further in advance if timings permit for any future events, and to provide feedback to Accelevents on this topic, given how responsive their customer support team was.

Other issues on the day were intermittent lag on the platform itself, and inconsistent streaming quality.

Finally, the 20-second delay on the live-stream from the main stage of the platform directly impacted making sessions effectively interactive. This apparently is standard on any live-streaming platform, and we ended up moving our afternoon panel discussion to a ‘working session’ on the platform, which acted more like a zoom room. This removed the delay in the presentation, but it also meant that there was no option to prevent participants from turning on their own videos or audio, leading to some interruptions. It also made recording the session a challenge, as they did not offer the same options for recording as were available on the Main Stage.

In summary, we were impressed with the platform features and especially their customer support. The “day of” technical difficulties were within the acceptable range for a first-time event and we have taken it as a learning experience. Our thanks to all our participants and speakers for their patience as we navigated the new platform together.

Morning Session

CEAB Presentation

Presented by Bob Dony, CEAB Chair, Ph.D., P.Eng., CEng, FIEE, FEC

As has been our tradition, the day opened with the CEAB presentation. Bob Dony provided a summary of questionnaire changes and described how the Board is approaching a situation which remains full of unknowns. This year, GACIP Summit Plus Participants were invited to provide questions ahead of time which were then addressed in the presentation. There was also a Q and A session during the session.

The update covered the following topics:

- Recent relevant changes (to criteria, procedures, tools)
    - 21/22 Resources and Questionnaire, are now posted on the accreditation site.
    - Key reduction in the minimum number of required AUs in a program from 1,950 to 1,850 (with associated reduction from 405 to 305 in Appendix 7)
    - Shift continues in Outcomes assessments to place greater focus on the GA/CI processes as opposed to assessment results (e.g. GA dossier to now focus on 3 three examples where changes to a program were considered rather than all data for all changes).
- Other CEAB Activities (working groups, task forces, and consultations)
    - Consultations on clauses 8 and 9 of the *Interpretive statement on licensure expectations and requirements* will continue until January 29th (en français)
    - Engineering Design Task Force is reviewing feedback and a consultation report is expected as early as February 2021 (en français)
    - Working group and task force upcoming activities expected by February 2021:
        - First report from “Student Learning Experiences in the Age of COVID” group
        - Initial response to the Engineers Canada “30 by 30” Initiative
        - Update to Policy and Procedures Committee Terms of Reference
        - Final report by Required Visit Materials Working Group.
- COVID-19 response
    - Four statements have been issued to date, all available on the accreditation site. (en français)
    - Measures implemented for the COVID-19 response are temporary.
    - CEAB will be taking extenuating factors into consideration when evaluating programs impacted in subsequent accreditation cycles.
    - Expectations are not being reduced, but CEAB is receptive to innovative measures being used to satisfy criteria.

    - Accreditation visits in the 2020/2021 cycle for currently accredited programs have been deferred for one year.
    - Virtual visits are scheduled with 3 institutions in the new year for new programs. The CEAB is collecting best practices to determine the format of visits and has a working group dedicated to preparing for virtual visits.
- 21/22 and 22/23 Accreditation Cycles:
    - Meetings and discussions are ongoing on 21/22 and 22/23 accreditation cycles.
    - There is uncertainty with how the pandemic will progress, but the CEAB is will endeavour to make decisions such that institutions have ample time to prepare.
- This shift to online is also an opportunity to experiment and try things to evolve the landscape, including critical examinations of in-person visit objectives and collaboration with institutions to make system improvements.

You are welcome to review the full **presentation slides** or the **session recording** as well.

There was an extensive Q and A session following the completion of the official presentation:

Q: What are your thoughts on AUs, k-factor, etc. for online courses?
A: We have a task force looking at how we can pivot curriculum measurements to focus more on learning time. The principle we're working with for now on AUs and the k-factor is asking how courses were designed initially, even though delivery may be different.

Q: What does triangulation of evidence actually mean?
A: When going on a visit, we look at the information provided in advance in the questionnaire and verify the information through interviews with faculty, staff, students, and administration as well as tours of the facilities.

Q: Regarding the rewording of criteria, will there be more examples of how to take up processes if not using an AU-based approach?
A: We are working on some further guidance for institutions.

Q: Lack of hands-on labs is a concern for all of us. Would students have to delay graduation to complete hands-on labs?
A: This is absolutely a shared concern:
- Institutions, programs are looking at learning outcomes that labs satisfy. How many of those outcomes could be achieved through virtual settings or simulation?
- If institutions feel the program needs the physical aspect, there will be a discussion.
- CEAB is not going to mandate a certain percentage of physical labs.
- We are looking into developing further guidance on what appropriate laboratory experience means.

Q: What is the status of efforts to make international exchanges more accessible for engineering students with accreditation requirements?
A: There are several aspects to this:
- Policies and Procedures Committee of the CEAB is working on this issue with consultation from regulators.
- Conversations with the Dean's liaison committee are occurring to understand where pinch points are.
- Conversations with regulators are happening to see where flexibility can be allowed.

Q: **Would CEAB expect to see different AU counts for online vs. in-person?**
A: There is the short term and longer term to consider here:

- Temporarily, can view it as a course was designed with this number AUs, but had to shift the delivery method.
- Flexibility to say you're incorporating the same learning outcomes for course, just a different delivery method.
- Not expecting institutions to scrap AU count because we're moved online.
- Task force is looking at how we can account for greater prevalence of online moving forward.

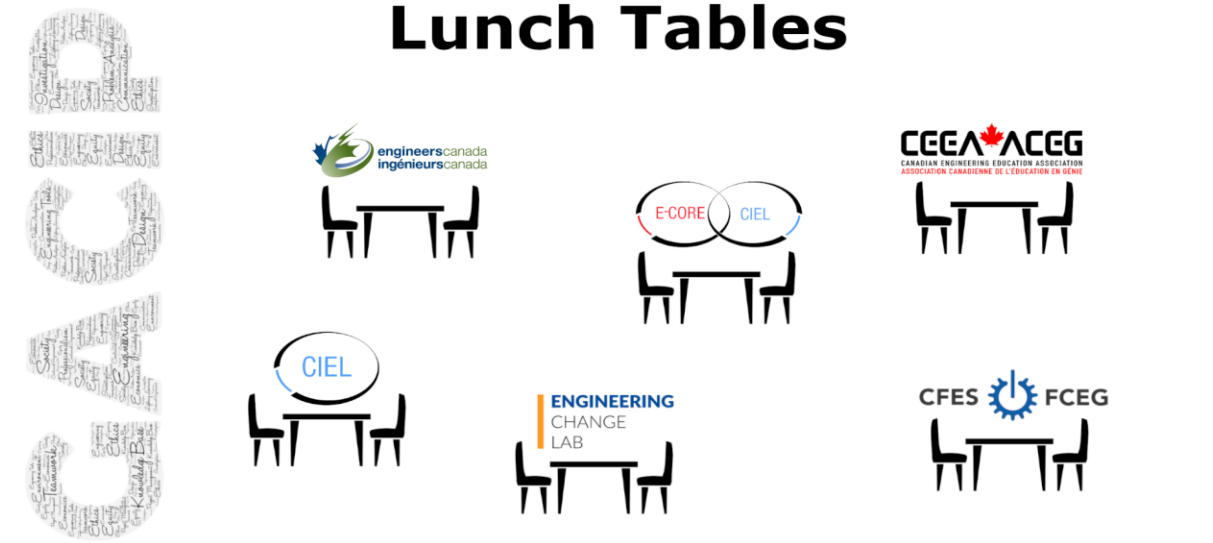
Q: **Is this interpretation applicable in Fall 21?**
A: Delivery methods are still being modified as pandemic continues. If that falls into Fall 2021 then that's still included in the temporary measures and flexibility.

Speed Updates Presentation

A number of groups working in the engineering education sector were invited to provide a concise presentation either summarizing their offerings, or sharing recent findings.

Organization	Presenter(s)	Key Takeaways
Engineering Collaboration for Online and Remote Education (E-CORE/CIEL) Project	Liz DaMaren, Project Coordinator 	A review of currently available E-CORE/CIEL Project supports for engineering instructors, including resources, webinar recordings, Communities of Practice, and more. **Slides + Presentation here**.
Collaboration pour l'ingénierie enseignée en ligne (CIEL)	Julienne Bissou, Coordinatrice, CIEL 	Background on the CIEL working group and information about their meetings and projects underway. **Slides + Presentation here**.

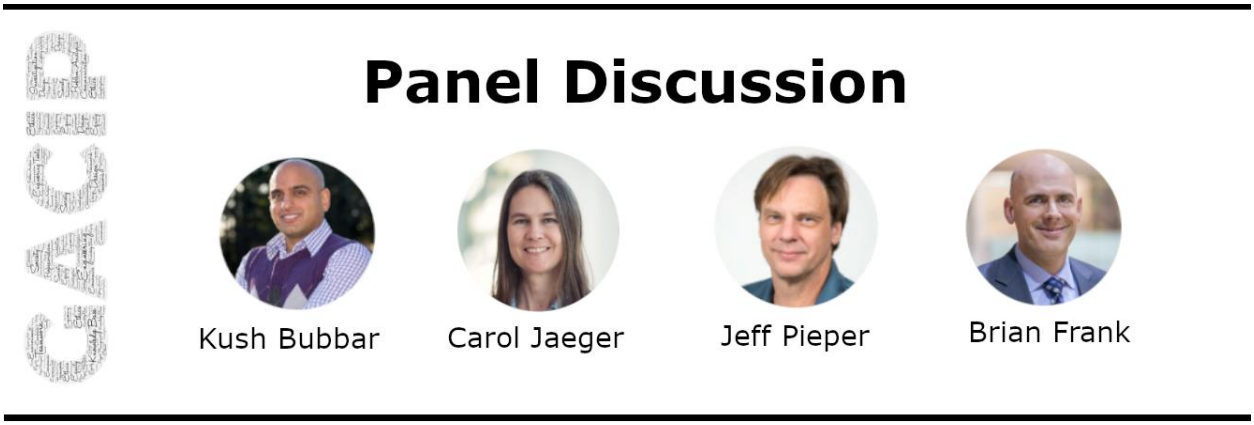
	Daniel Spooner, Responsable, CIEL 	
Canadian Engineering Education Association (CEEA-ACEG)	Amy Hsiao, President-Elect 	An overview of current activities and a review of the plan for the 2021 CEAA-ACEG Conference, “Stimulating a Sustainability MIndset in Engineering Education”, which will be fully online this year. **Slides + Presentation here**.
Engineering Change Lab (ECL)	Mark Abbott, Director 	An overview of ECL’s recent work on the EWB International Open Letter on Graduate Attributes as a response to the World Federation of Engineering Organization’s consultation on proposed updates to the IEA Benchmark for Graduate Attributes and Professional Competencies. **Slides + Presentation here**.
Canadian Federation of Engineering Students (CFES)	Sierra Sparks, VP Academic 	A review of the survey that the CFES conducted, seeking to understand how COVID-19 has impacted the student experience (which had over 4000 participants!). **Slides + Presentation here**.



The Lunch Tables were informal breakout rooms provided for each of the morning session presenters as well as a general GACIP session hang out. No recording was made of the conversations, as they were not part of the formal proceedings, but rather a chance for some one on one discussions. This initial attempt to replicate the in-person experience was, as with all first tries, a learning experience, and we look forward to applying those lessons to the next event. Our thanks to the table hosts:

Organization	**Table Host(s)**
CEAB	Bob Dony, Chair Mya Warken, Manager of Accreditation and CEAB Secretary Elise Guest, Accreditation Program Advisor
Engineering Collaboration for Online and Remote Education (E-CORE/CIEL) Project	Liz DaMaren, Project Coordinator Steve Mattucci, Project Advisor
Collaboration pour l'ingénierie enseignée en ligne (CIEL)	Julienne Bissou, Coordinatrice, CIEL Daniel Spooner, Responsable, CIEL
Canadian Engineering Education Association (CEEA-ACEG)	Amy Hsiao, President-Elect Robert Fleisig, Secretary/Treasurer Yang Cao, Regional Director: West
(CEEA-ACEG) 2021 Conference	Grant McSorley, Technical Chair Nicholas Krouglicof, Sponsorship Chair
Engineering Change Lab (ECL)	Mark Abbott, Director
Canadian Federation of Engineering Students (CFES)	Sierra Sparks, VP Academic Laura Stoyko, Social Issues Commissioner

Afternoon Session



A key part of this year's event was our afternoon panel discussion, featuring four individuals representing institutions from across Canada who talked about different approaches and experimentation they have seen both within their own courses and at their institutions.

Panelists

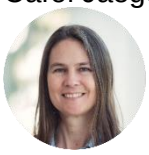
The four panelists that joined the discussion were:

- **Kush Bubbar**, Assistant Professor, Electrical and Computer Engineering & J. Herbert Smith Centre, University of New Brunswick
- **Jeff Pieper**, Associate Dean, Continuing Professional Development, Schulich School of Engineering, University of Calgary & CEAB Member
- **Carol Jaeger**, Associate Dean, Academic, Faculty of Applied Science, University of British Columbia
- **Brian Frank**, Associate Dean, Teaching and Learning, Faculty of Engineering and Applied Science, Queen's University

Panelist Discussion

Each panelist was invited to give a brief update and statement regarding their current situation with a focus on one particular aspect of what they have observed within their own courses and/or at their respective institutions.

Panelist	Key Points
Kush Bubbar 	• Pivoted instruction to teaching online using a hybrid model (i.e. flipped classroom) • The innovation is not the teaching model but the use of innovative technology to facilitate the effective delivery of the teaching model. • In the design of his engineering design courses, mapped out the journey of the various stakeholders in the course (students, instructors, mentors, etc…) and used this as input to actively design his instructional schedule.

	• By identifying threshold concepts I was able to design instructional order and emphasize these concepts via pre-recorded video lectures and in class examples. • Through mapping out the journey of various stakeholders, I was able to identify roadblocks and introduced several interventions into my instructional experience via technology. • Pandemic has amplified fundamental issues instructors were not aware of. Examples of technology interventions: • Use of Microsoft Bookings page for students to book meetings with me based on my set availability. This way students know they can book me if they have a question without back and forth emails. Bookings even sends a meeting invite with MS Teams connection information. Students no longer need to wait for my response to book a meeting with me. • Use of OBS Studio and OpenShot Video Editor to edit and create concise high quality pre-recorded lectures • Use of D2L to facilitate summative multiple choice quizzes based on pre-recorded lecture content • Use of MIRO to facilitate in-class group activities based on a single case study. Designing activities in MIRO is an art and there are many very helpful tricks I learned through the CEEA EETI SIG. • Use of ZOOM to facilitate in-class group activities via breakout rooms based on a single case study • Use of Drawboard Projects to facilitate cloud based assessment of reports from multiple stakeholders onto a single document source. • Use of PollEverywhere to engage students during lecture to dynamically assess student focus and their understanding of key concepts.
Jeff Pieper 	• Used zoom and synchronous materials a lot, with some asynchronous materials recorded. • Online labs are potentially a durable innovation - have been running in class and virtual labs simultaneously with success. ○ Online labs shouldn't just be data sets and videos; should include an exercise of some kind (e.g. simulation exercises). • Assessments are problematic. Online exams have been giving extra time to deal with technical issues, but don't think it will be a durable innovation. • Learning exercises need to be more realistic, similar to what might be done in a job. • Connecting with students is more difficult online. We need to expand and adjust to more learning styles because we are losing students.
Carol Jaeger 	• Hearing from students that their preference is for synchronous lectures with back up recordings available. • For commuter schools like UBC, there would be interest in maintaining some remote learning options (i.e. convert a subset of lectures to online) to enable better schedules for students, more flexibility with classroom booking, and a wider range of learning modalities. • Instructors creating content for online learning and making that available is providing long-term value.

	• MS Teams is another example of an innovation that is good for supporting team collaboration and has been adopted by many of our design courses (including our first-year engineering design course and several capstone courses).
	• Large first year class, engineering design, was already flipped. Lost ability for students to work together on short activities during lectures.
	  ○ Used zoom webinar; finding it works better than a zoom meeting (less distracting for instructor)
	  ○ Have found 2 instructors required for optimal lecture design/delivery on-line (1 running the lecture, 1 running the chat)
	  ○ Opportunity to chat with students, finding creative ways to get student feedback (e.g. mentimeter) - durable innovation
	• Trying to create a community for students is a challenge. By being present online and trying to create an inviting atmosphere, students are responding well to efforts.
	• Have encouraged instructors to be mindful of learning time, inclusive of lectures and independent work, to monitor student workload. This is a valuable exercise in the long run and supports the notion of moving away from contact time as a measure of learning.

Brian Frank 	• Conversations are being had; what does it take to train engineers? Assessments, labs, encouraging academic integrity. • Moving to more authentic assessments and blended activities requires that we think deliberately about how integrity, professionalism and academic integrity are being discussed with students as opposed to imposed on them. ○ Moving to make it part of the culture rather than an adversarial relationship • Recording high quality videos is an investment in asynchronous learning because it can save student time. • Thinking more deliberately about how we use resources from blended classrooms in the long term, and how we can use instructor time in the long term if time is freed up thanks to previously generated materials (e.g. recorded lectures).

They then engaged in an open discussion with each other exploring these ideas further:

Labs

- In-person experience is critically important for students
- In control systems courses, having both online and in-person labs was okay.
- Sending LabInABox kits to students can allow them to have a hands-on experience at home.
  - Some courses (e.g. electronics) are better suited to this than others (e.g. chemistry)
- There are some concerns around getting back lab kits that have been sent to students.

Learning Time

- Instructors providing more resources for online learning has increased student workload.
- Should be thinking about adding *value*, not *volume* to workloads.
- Recorded lectures allow for conciseness and enable students to go at their own pace, but learning the content still takes time.
  - May save some students time if they understand the content on the first go, but others will need to spend more time on it.

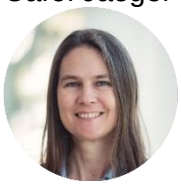
Continual Improvement Process

- Thinking about modifications and experimentations over the last year that could impact the continuous improvement process
- There has been a shift in thinking to focus on learning time as opposed to contact time.
- Gaining ability to do quick feedback to assess learning activities, which can drive CI processes and could be a durable innovation.
- At a lot of institutions, the amount of data being collected on Graduate Attributes has gone down dramatically as people are focused on more immediate course concerns.
- Instructors previously using their own websites are shifting to central Learning Management Systems and populating them with content. The next step is to figure out how to pull information out of LMSs more efficiently to enable consistent data collection.

Breakout Room Discussion

Following the initial panel discussion, participants were invited to enter smaller breakout room discussions with several prompts around experimentation in engineering education and where we go from here. When the group came back together, each room facilitator was invited to share a short summary of what was discussed in each room, which are summarized below:

Breakout Room / Facilitator	**Key Takeaways from Discussion**
#1 Brian Frank 	• Potential shift towards more authentic assessments and activities. Rethinking final exams. Need a way to know who's doing the work. Use of oral exams, not common in Canada but is elsewhere in the world. • Importance of student mental health, which will be a continuing legacy.
#2 Kush Bubbar 	• Will shortening the lecture times (i.e. making them more concise) risk CEAB requirements no longer being met? What are other impacts to accreditation? • Challenge of delivering group technical activities online. Combining pen and paper with technology, challenges exist for students with varying amounts of technology (i.e. owning a tablet vs. not owning).
#3 Jeff Pieper 	• This could be a renaissance of high quality instruction. This could be a motivation to connect with students better than just talking at them.

#4 Carol Jaeger 	• Looping back to durable innovations - all of the work people have done to create inventory (question banks, videos, etc) have long-term value. • Interest in the idea of using the whole year better, greater variety of offerings in the summer. Enabling transfer credits. Could help make student workloads more manageable.
#5 Steve Mattucci 	• Using what's happened around assessments as a springboard for questioning utility of assessments. How grades are used with assessments, different types of assessments. • Program evaluation. Many instructors stress about trying to evaluate too much. Focus on assessing parts of the program really well, then worry about capturing other aspects in different years.
#6 John Donald 	• Breaking down of barriers, within and outside university. Example, cross-campus capstones, bringing alumni and industry into the classroom. International experience. All added to activities. • How the profession itself is changing as a result of Covid, and wondering if use of simulation may bring us closer to practice in industry.
#7 Nasim Razavinia 	• Virtual academic advising and office hours seem more appealing to students. • Created more opportunities to reach out to students re mental health. • Course web sites are well used, and can be kept for the future. • Hybrid learning is going to be an ongoing thing, taking advantage of work that has been done. • We need more data re what is happening to draw future conclusions, including on hybrid learning impacts • Being more self regulated may develop lifelong learning skills.
#8 Christine Moresoli 	• Blended learning will remain. Question remains how it will be successful. • Critical role is finding ways to increase student motivation. • Need to be mindful of divergence of employment rates across programs. Potential disconnect between programs and what COVID workforce will look like.

Next Steps - How to Engage/Connect/Explore Further

Every year there is enthusiasm on the day of GACIP to extend and continue conversations, but follow-up gatherings are challenging due to busy schedules. The ascendance of on-line connections provides more flexible follow-up options. We hope you will review the possibilities identified from this year's GACIP, and consider continuing the conversations that are of interest to you. Please note that you do not have to have been an attendee of the event in order to participate in any of the options presented in this section - the goal is to include as many of our community as possible.

Afternoon Session Follow Up Opportunities

The breakout room conversations covered a diverse range of topics, as indicated by the summary statements. We have identified some key themes with associated extant resources, engagement opportunities, or invitations to let us know if you would be interested in participating if a related opportunity is developed, as appropriate:

Topic	**Related Resources + Connection Opportunities**

Assessments Related	• Consider participating in the **Assessments Community of Practice (CoP)**
	• Check out the following resources:
	  ○ **Remote Assessments Quick Guides**
	  ○ [Coming soon]: Oral Exam guide from E-CORE/CIEL (will be posted on our **Resources Page**)
	• Consider starting/participating in a **Discussion Forum**

Student Mental Health & Wellness Related	• Consider participating in the **Supporting Student Mental Health & Wellness Community of Practice (CoP)**
	• Check out the following resources:
	  ○ **Supporting Student Mental Health in the Virtual Classroom checklist**
	  ○ **Building an Inclusive Virtual Community Quick Guide**
	• Consider starting/participating in a **Discussion Forum**

Lecture Development and Instruction Quality	• Consider participating in the **Design Educators Community of Practice (CoP)**
	• Check out the following resources:
	  ○ **Remote Course Design checklist**
	  ○ **Open Educational Resources (OERs) & Creative Commons Licensing Quick Guide**
	  ○ **Ensuring Appropriate Student Workload in Online Courses**
	• Consider starting/participating in a **Discussion Forum**

Lab and Technical Material Remote Delivery Challenges/Opportunities	• Consider participating in the **Lab Community of Practice (CoP)**
	• Check out the following resources:
	  ○ **Web-Based Collaborative Design Tools Quick Guide**
	  ○ [Coming soon]: Online lab guide from E-CORE/CIEL (will be posted on our **Resources Page**)
	• Consider starting/participating in a **Discussion Forum**

Closing Remarks

The 2020 GACIP Summit Plus aspired to be a mix of the new, in terms of being a national, on-line event expanding our range of participant groups, and the reliably familiar, in our efforts to provide an opportunity to take some time at the end of the teaching term to reflect on the bigger picture issues associated with Graduate Attributes and Continuous Improvement Processes. The EGAD Group is grateful to E-CORE/CIEL Project for partnering with us to follow through on this vision.

We hope that both those who were able to participate in the day itself, as well as those who are reading about it here consider engaging further around the topics discussed over the course of the event. The E-CORE/CIEL Project is constantly working to catalyze and help support educators in their pursuits to develop resources, events, and other materials around engineering education. If you have resources you would like to share, an idea for an event, or have other suggestions for supports that could be developed, please reach out to the project team at ecore@ceea-aceg.ca. The EGAD Group remains dedicated to the discussion and advancement of the GACIP conversation, and our website remains a source of updates and resources.