TLEF Project – Final Report

Report Completion Date: (2021/12/14)

1. PROJECT OVERVIEW

1.1. General Information

Project Title:	Developing reusable technology workshops to enhance digital literacy		
Principal Investigator:	Ekatarina (Eka) Grgurić		
Report Submitted By:	Ekatarina (Eka) Grgurić		
Project Initiation Date:	2021/03/11	**Project Completion Date:**	2021/11/30
Project Type:	☐ Large Transformation ☒ Small Innovation ☐ Flexible Learning ☐ Other: [please specify]		

1.2. Project Focus Areas – *Please select all the areas that describe your project.*

☒ Resource development (e.g. learning materials, media)

☐ Infrastructure development (e.g. management tools, repositories, learning spaces)

☒ Pedagogies for student learning and/or engagement (e.g. active learning)

☐ Innovative assessments (e.g. two-stage exams, student peer-assessment)

☒ Teaching roles and training (e.g. teaching practice development, TA roles)

☒ Curriculum (e.g. program development/implementation, learning communities)

☐ Student experience outside the classroom (e.g. wellbeing, social inclusion)

☐ Experiential and work-integrated learning (e.g. co-op, community service learning)

☐ Indigenous-focused curricula and ways of knowing

☐ Diversity and inclusion in teaching and learning contexts

☒ Open educational resources

☐ Other: [please specify]

1.3. Final Project Summary

We are excited to report on the outcomes of this project having completed two full years of work. Despite a sudden shift to a remote working environment in year one the project has proceeded on schedule and even benefited from the opportunity to explore remote-first workflows.

In year one, between May and August 2020, four Graduate Teaching Assistants (GTAs) from various disciplines developed and delivered a suite of six specialized workshops on GIScience topics. Year two transitioned focus to Digital Scholarship topics. Between May and August 2021, four GTAs developed a total of six workshops which were offered once in the late summer.

All workshop materials created as a part of this project have been published on GitHub.com and are available under a Creative Commons Attribution 4.0 International License:

Year 1

- Understanding spatial data: map projections
- Introduction to spatial data analysis with R
- Geocoding & web mapping with Python
- Geospatial analysis & visualization with Python
- Visualizing data in ArcGIS Online
- Spatial network analysis

Year 2

- Creating XML Files in oXygen
- Advanced Shell
- Build and customize a Website with Jekyll
- Setting up a development environment
- Introduction to Regular Expressions
- Introduction to Web Scraping with Python

In the first year, our proposal estimated the workshops would reach 200 attendees. We exceeded this projection with total attendance of 222. This represents 153 individuals, some of whom attended multiple workshops in the series. Aligning with the Research Commons' campus-wide support mandate the content drew a multidisciplinary audience. Three quarters of registrations included voluntary information about the participant's faculty, distributed as shown:

Forestry, Faculty of	27%
Applied Science, Faculty of	20%
Arts, Faculty of	13%
Medicine, Faculty of	11%
Sciences, Faculty of	10%
Community and Regional Planning, School of	6%
Architecture and Landscape Architecture, School of	4%
Land & Food Systems, Faculty of	4%
Pharmaceutical Sciences, Faculty of	2%
Other	3 %

In the second year we estimated higher participation and planned to increase registration caps to reach an estimated 400 participants during 12 synchronous sessions or 30-35 participants each, in addition to independent learners who access the content asynchronously. We since opted to run each workshop once instead of twice which impacted this estimate and lowered it to approximately 200 participants during 6 synchronous sessions of 30-35 participants each.

Running each workshop once allowed us to do more internal review of content and teaching approach. We did this through a session hosted by CTLT as well as through internal run-throughs. Internal workshop run-throughs were attended by invited peer reviewers from peer institutions who were involved in similar work. This was very effective in creating a stronger feedback environment and the benefit of this approach will inform future workshop development.

In year two we had 202 registrants with an estimated 123 attendees (67% of registrants, a percentage based on the workshops for which we have exact attendance figures). One of our workshops, “Creating xml files from newspapers in oXygen”, unfortunately happened late in the summer and there were no attendees so it was cancelled, rescheduled, and cancelled again. This workshop is excluded from our attendance estimates. We did raise registration caps to 80 participants per session which lowered administrative overhead but did not increase attendance. It’s worth noting that in year two our workshops ran later in the summer term than in year one which likely impacted attendance across the board.

Again a large proportion of registrants included voluntary faculty information which is represented as follows:

Sciences, Faculty of	31 %
Applied Science, Faculty of	17 %
Medicine, Faculty of	14 %
Arts, Faculty of	7 %
Forestry, Faculty of	7 %
Business, Sauder School of	5 %
Library, Archival and Information Studies, School of	3 %
Dentistry, Faculty of	2 %
Education, Faculty of	2 %
Vancouver School of Economics	2 %
Land & Food Systems, Faculty of	1 %
Law, Peter A. Allard School of	1 %
Pharmaceutical Sciences, Faculty of	1 %
Other	4 %

Quality and range impact

In both project years, we sought to publish and provide openly all workshop material necessary for both live, synchronous, and asynchronous teaching and learning. Due to pandemic restrictions we pivoted to a fully virtual offering during the initial months of year one. As a result, all onboarding, training, and meetings were affected, as well as the final workshop delivery method.

Impact of remote working environment

Though working online did not limit project output in year 1, it affected social cohesion among content developers and the sense of being on a team. In the abrupt shift from in-person to online work spaces we did not modify the project timeline, the number of contact points, or the type of interactions. After the first year we noted that the project would have benefited from more frequent online check-ins or opportunities for content developers and TLEF team members to engage with each other. We worked to incorporate this lesson learned into the second year of the project with some success. Weekly check-ins, more opportunities for feedback through run-throughs, and provisioning a chat space through Microsoft Teams all benefited the project. Out of all interventions the weekly check-ins and the feedback-focused run-throughs were most successful and contributed to team cohesion.

Evolution of our approach

Year 1

In the first year of this project CTLT provided a single short-form training session for the GTAs and we ran each workshop twice. Topic selection was focused on a mix of perceived needs in our curriculum based on consults that came in to the Research Commons librarians and skillsets that the GTAs brought to the project. This approach to topic selection was maintained into year two. Less than three months after TLEF-funded work was completed four of the workshops from year 1 were offered again as part of regular Research Commons programming, a promising indication of the sustainability of this initiative.

Year 2

While many things stayed the same from year 1 we took some of the feedback provided by students and iterated on a few things. The GTAs expressed a desire for more opportunities for team building and that the CTLT session came late for their work.

- **Online team building**. In year 2 we were more deliberate about building a sense of community among those involved in the project, including more scheduled opportunities for everyone to meet online, share their work, and learn from each other. Members of the Research Commons team actively offered support to content developers at key stages, rather than waiting for them to come forward with needs or questions.
- **Engagement with TLEF team**. In the first year some TLEF collaborators were only engaged for a specific task. In year 2 we benefited from our broader TLEF team's diversity and expertise by inviting everyone to engage at various stages of the project (e.g. promoting position postings and live workshop events, providing feedback on practice workshop sessions, and providing feedback on a news story summarizing our project work published by the Research Commons).
- **More structure for content developers.** The original project allocated 40 hours to develop content for each workshop with few milestones or guidelines to help developers structure their work. Feedback from year 1 suggested this was too open-ended, and that the group would have benefitted from more guidance. In the second year we provided a clearer timeline to help content developers approach the work and manage their time.
- **Publishing speaker notes for workshops**. All workshop materials are published for reuse, but in year 1 we did not ask content developers to include their speaker notes or other supplementary material that would help other presenters deliver the material in other contexts. In year 2 preparing and publishing speaker notes was one of the requirements for each workshop.
- **New format for orientation/training**. The content developer onboarding process in year 1 was intended for an in-person environment. In year 2 we provided several shorter orientation meetings during the first weeks of the project, which was more appropriate for an online environment.
- **Larger class sizes**. In year 2 we increased the registration limit to 80 per workshop in an attempt to reach a wider audience.

Overall year 2 suffered from our final timeline: running only one round of workshops at the end of the summer term resulted in lower attendance overall. The creation of relevant curricular content for the Digital Scholarship portfolio was, however, a success. Similar to year 1 we were able to re-run and incorporate two of the workshops into our regularly scheduled offerings within a few months of content creation.

Lessons learned

Incorporating feedback from year one was generally a success. Having multiple opportunities for feedback from CTLT, doing more robust run-throughs with peer reviewers, and scheduling weekly check-in meetings to maintain team cohesion all worked well. Major challenges at the end of year two included scheduling around student availability. Running each workshop only once with a live audience beyond peer reviewers was less impactful for the GTAs who wanted to leverage their experience from the first session into a second run. Holding a "blameless post-mortem" meeting at the end of this project was helpful. (A blameless post-mortem is similar to a facilitated focus group and creates a safe space for feedback about process.)

After year one we were fortunate to be able to hire two of our GTAs as Research Commons Graduate Academic Assistants (GAAs) and re-run workshops in the next term, more thoroughly integrating them into our regularly scheduled offerings. However in the second year we had less capacity to do this. One student was already employed as a GAA and was able to re-run two of our workshops to incorporate them into our regularly scheduled Research Commons offerings.

1.4. Team Members – *Please fill in the following table and include **students**, undergraduate and/or graduate, who participated in your project.*

Year 1

Name	Title/Affiliation	Responsibilities/Roles
Jacqui Brinkman	Director, Graduate Student Professional Development, Graduate and Postdoctoral Studies	Promotion of position postings and workshops, consultant on topic selection.
Jeremy Buhler	Data Librarian, UBC Library Research Commons	PI year 1, project coordination.
Allan Cho	Research Commons Librarian, UBC Library Research Commons	Topic consultant, project coordination.
Maya Daurio	Graduate student	Graduate Teaching Assistant (GTA).
Ekatarina (Eka) Grgurić	Graduate student	PI year 2, GTA lead for Digital Scholarship topics, project coordination.
Sally Hermansen	Professor, UBC Geography	GIScience instruction consultant and workshop reviewer
Arthur Marques	Graduate student	Graduate Teaching Assistant (GTA).
Nicholas Martino	Graduate student	Graduate Teaching Assistant (GTA).
Raymond Ng	Professor, UBC Computer Science; Scientific Director, UBC Data Science Institute	Promotion of position postings
June Skeeter	Graduate student	Graduate Teaching Assistant (GTA).

Evan Thornberry	GIS Librarian, UBC Library Research Commons	Library topic consultant, GTA lead for GIScience topics, project coordination.
Joseph Topornycky	Manager, Graduate Student Programs, CTLT	Training sessions for GTAs on effective delivery of content with a focus on online delivery.

Year 2

Name	Title/Affiliation	Responsibilities/Roles
Jacqui Brinkman	Director, Graduate Student Professional Development, Graduate and Postdoctoral Studies	Promotion of position postings and workshops, consultant on topic selection.
Jeremy Buhler	Data Librarian, UBC Library Research Commons	PI year 1, project coordination.
Mary Chapman	Professor, English Language and Literatures; Director, Public Humanities Hub	Promotion of position postings and workshops, consultant on topic selection.
Allan Cho	Research Commons Librarian, UBC Library Research Commons	Topic consultant, project coordination.
Liam Doherty	Graduate student	Graduate Teaching Assistant (GTA).
Shayan Fahimi	Graduate student	Graduate Teaching Assistant (GTA).
Mikhael Gaster	Graduate student	Graduate Teaching Assistant (GTA).
Ekatarina (Eka) Grgurić	Graduate student	PI year 2, GTA lead for Digital Scholarship topics, project coordination.
Dorothee Leesing	Graduate student	Graduate Teaching Assistant (GTA).
Megan Meredith-Lobay	Digital Humanities Analyst, ARC	Promotion of position postings and workshops, consultant on topic selection.
Patrick Pennefather	Assistant Professor, Theatre & Film; Emerging Media Lab	Promotion of position postings and workshops, consultant on topic selection.
Evan Thornberry	GIS Librarian, UBC Library Research Commons	Library topic consultant, GTA lead for GIScience topics, project coordination.
Joseph Topornycky	Manager, Graduate Student Programs, CTLT	Coordinated providing a student to delivery training sessions for

		GTAs on effective delivery of content.
Jens Vent-Schmidt	Educational Consultant: Design	Training sessions for GTAs on effective delivery of content with a focus on online delivery.

1.5. Courses Reached – *Please fill in the following table with **past**, **current**, and **future** courses and sections (e.g. HIST 101, 002, 2017/2018, Sep) that have been/will be reached by your project, including courses not included in your original proposal (you may adapt this section to the context of your project as necessary).*

Course	Section	Academic Year	Term (Summer/Fall/Winter)

2. OUTPUTS AND/OR PRODUCTS

2.1. *Please **list** project outputs and/or products (e.g. resources, infrastructure, new courses/programs). Indicate the current location of such products and provide a URL if applicable.*

Product(s)/Achievement(s):	Location:
Understanding spatial data: map projections	https://ubc-library-rc.github.io/map-projections/
Introduction to spatial data analysis with R	https://ubc-library-rc.github.io/gis-with-R/
Geocoding & web mapping with Python	https://ubc-library-rc.github.io/Geocoding-Web-Mapping-with-Python/
Geospatial analysis & visualization with Python	https://ubc-library-rc.github.io/Geospatial-Analysis-Visualization-with-Python/
Visualizing data in ArcGIS Online	https://ubc-library-rc.github.io/intro-AGOL/
Spatial network analysis	https://ubc-library-rc.github.io/qgis-walkability/
Creating XML Files in oXygen	https://ubc-library-rc.github.io/creating-xml-files-in-oxygen/
Advanced Shell	https://ubc-library-rc.github.io/advanced-shell/
Build and customize a Website with Jekyll	https://ubc-library-rc.github.io/intermediate-Jekyll/
Setting up a development environment	https://ubc-library-rc.github.io/intro-development-environment/
Introduction to Regular Expressions	https://ubc-library-rc.github.io/intro-regex/
Introduction to Web Scraping with Python	https://ubc-library-rc.github.io/intro-web-scraping-Python/

2.2. Item(s) Not Met – *Please list intended project outputs and/or products that were not attained and the reason(s) for this.*

Item(s) Not Met:	Reason:

3. PROJECT IMPACT

3.1. Project Impact Areas – *Please select all the areas where your project made an impact.*

☒ Student learning and knowledge

☐ Student engagement and attitudes

☒ Instructional team-teaching practice and satisfaction

☐ Student wellbeing, social inclusion

☐ Awareness and capacity around strategic areas (indigenous, equity and diversity)

☒ Unit operations and processes

☐ Other: [please specify]

3.2. What were you hoping to change or where were you hoping to see an impact with this project? – *Please describe the intended benefits of the project for students, TAs, instructors and/or community members.*

All content created as a part of this project is available under a Creative Commons Attribution 4.0 International License that enables sharing and reuse. Moreover our use of a static site approach to the design of content makes it so that individuals with weaker internet connections (eg. those working or studying from home) can download a relatively small folder hosted on GitHub which contains all of the workshop content and interact with it on their local machines without relying on their internet connection being stable. Beyond the synchronous workshops we offered, all content is also designed to be possible to engage with asynchronously by someone who could not attend the synchronous session or whose learning styles favor asynchronous learning. In year two we also worked to include instructor notes to make it easier for future instructors to deliver and remix the content.

Taking a static site approach and hosting content on GitHub also means that content can be viewed, reused, and remixed both by individuals who are no longer a part of UBC (eg. students who have graduated), or who are not affiliated with UBC. There are no barriers to content access based on affiliation which supports students who graduate and projects with cross-institutional partnerships.

This approach directly benefits instructors at UBC, current students and researchers, and alumni by decreasing barriers to workshop content. Additionally, the topics selected were informed by consults in the Research Commons, the skillsets and ideas that our GTAs brought to the team, and visible needs in the broader international research community informed by similar open educational curricula (eg. the Carpentries which are an international non-profit technology skill training organization). This approach to topic selection helped to ensure that the materials we invested in developing met community need either broadly or by filling a necessary niche.

All of our GTAs benefited from their involvement in this project by stretching their skills, exploring new aspects of topics they had familiarity with, and learning how to better present information in a virtual teaching environment. We left space for experimentation while also vetting an existing workflow by applying it to a second year of this project.

3.3. Were these changes/impacts achieved? How do you know they occurred? – *How did you measure changes/impacts? (e.g. collected survey data, conducted focus groups/interviews, learning analytics, etc.) Describe what was learned from this process. You are encouraged to include copies of data collection tools (e.g. surveys and interview protocols) as well as graphical representations of data and/or scenarios or quotes to represent and illustrate key themes.*

We measured the impact of these workshops by sending registrants a follow-up survey and by running facilitated feedback sessions with GTAs in both years. In year two we additionally held a blameless post-mortem at the end of our time with the GTAs. A blameless post-mortem is similar to a facilitated focus group and focused on creating a safe space for feedback about process. Feedback from our GTAs on the approach we took for the development of workshop materials was just as important as hearing from our participants. Notably GTAs appreciated having opportunities to learn as well as teach: "[I] enjoyed being given the chance

to learn a lot myself about this [topic]" and were got a lot from having to teach in a virtual environment: "I learned a lot about how to present a course in this virtual environment."; "Good learning opportunity for me overall, especially for presenting in a virtual environment."

In both years a test run of each workshop was also delivered to an invited audience of experts who were familiar with the topic and able to provide constructive feedback. In response to the feedback of one of our reviewers from year 1, Sally Hermansen, we invited a wider pool of reviewers to provide feedback in year 2. Experts from UBC Library, UBC ARC, UBC Forestry, UBC Okanagan, the University of Victoria, Simon Fraser University, WestGrid, the Emerging Media Lab, the Public Humanities Hub at UBC Vancouver were all invited to provide feedback and help improve on our approach in year 2.

Feedback from workshop participants was encouraging and reflected what we wanted to see from every Research Commons workshop:

"Liam was really good at answering questions and engaging the class. I really enjoyed the workshop. Bringing the lesson back to different languages also helped!"

"The knowledge points are explained smoothly and understandably"

"Good practical demonstrations of techniques. Instructor was open to questions and comments."

"I liked the activities to confirm comprehension or give presenter a chance to correct our understanding."

3.4. Dissemination – *Please provide a list of **past** and **upcoming** scholarly activities (e.g. publications, presentations, invited talks, etc.) in which you or anyone from your team have shared information regarding this project. Be sure to include author names, presentation title, date, and presentation forum (e.g., journal, conference name, event).*

Members of our TLEF team had opportunities to present on our GitHub-based workflow twice:

Buhler, J., Cho, A., Grgurić, E., Thornberry, E., "Collaborative development and publishing of open instructional content with GitHub." Talk, speaker, *ACCESS*, Virtual, October 22, 2020. 60 minutes. https://ubc-library-rc.GitHub.io/access2020/presentation-slides.html#/

Grgurić, E., "GitHub and GitHub pages for collaborative workshop development." Lightning talk, speaker, *BC Code4Lib,* February 18th, 2021. 10 minutes.

In addition to those two presentations, the work of this project to develop GitHub workflows informed this paper:

Thornberry, E., White, P., "GitHub and Jekyll for Publishing GIS Workshop Content" Geospatial Data and Software Reviews, No. 166 (2020): ACMLA Bulletin, Fall 2020, 25-30. https://doi.org/10.15353/acmla.n166.3463

4. **TEACHING PRACTICES** – *Please indicate if **your** teaching practices or those of **others** have changed as a result of your project. If so, in what ways. Do you see these changes as sustainable over time? Why or why not?*

   The Research Commons has an established workflow for using GitHub pages for workshop content development that has been improved upon and vetted by this project. New elements have been introduced to our workflow through the work of this grant. For example, workshop materials now include an "instructor notes" file which helps future instructors plan for how things are best presented. We also learned a lot about integrating feedback effectively when working with student content developers, had opportunities to experiment with the different ways in which feedback can be incorporated, and forged connections with colleagues doing similar work from units across campus and at other institutions who acted as peer reviewers.

5. **PROJECT SUSTAINMENT** – *Please describe the sustainment strategy for the project components. How will this be sustained and potentially expanded (e.g. over the next five years). What challenges do you foresee for achieving the expected long-term impacts listed above?*

   All project components are built into the work that the Research Commons does regularly which will help to sustain the material into the future. Our static site approach means that the content is easy to move from GitHub to another hosting platform if necessary. It is also possible to deposit into UBC's digital repository if we are unable to continue sustaining it or if content gets deprecated. The Research Commons does regular intermittent review of workshop repositories in our GitHub organizations, taking a team-based approach to this review (eg. GIScience workshops from year 1 are reviewed by our GIS team, and DS workshops from year 2 are reviewed for relevance, incorrect information, and broken links by our Digital Scholarship team).

   At the end of year 1 all workshops were re-run in the following term, fully integrating them into our Research Commons offerings. At the end of year 2 we were able to integrate two of the workshops immediately in the following term and plan to integrate others in the future.