Small TLEF Project – Final Report

Report Completion Date: (2018/12/13)

1. PROJECT OVERVIEW

1.1. General Information

Project Title:	Improving professional writing, reflection, critical analysis and feedback skills using tools that allow students to learn from their peers' work and allows for prompt peer feedback.
Principal Investigator:	**Amanda Bradley**
Report Submitted By:	**Amanda Bradley**
Project Initiation Date:	**April 2016**	**Project Completion Date:**	**November 2018**

1.2. Project Summary

The Bachelor of Medical Lab Science and Master of Physical Therapy Programs carried out this project with the aim to enhance students' writing, reflection and critical analysis skills and abilities to give/receive constructive feedback. Peer review tools were selected to achieve each program's respective aims: Calibrated Peer Review and Connect Self and Peer Assessment Tool in the first year and then peerScholar and the Canvas Peer Assessment tool were chosen in the second year, due to University level changes and our evolving ideas about how best to implement student peer review.

After making adjustments based on pilot evaluations, we implemented the peer review models for professional writing and reflection assignments within our two program's identified courses.

Additionally, we examined the potential for peer review at various points in our curricula and plan to expand (or have expanded) our use of peer review by piloting other appropriate peer review strategies in further courses (one in each program).

All students in both Programs benefited (as indicated by student perception data and improvements in the quality of written assignments and reflections) from this work and we anticipate that the models we have adopted will continue to be used in our Programs and may be used in other programs in Medicine and beyond.

1.3. Team Members – *(Please fill in the following table and include __students__, undergraduate or graduate, who participated in your project).*

Name	Title/Affiliation	Responsibilities/Roles
Anne Rankin	Instructor, Department of Physical Therapy (now retired)	Co-applicant, MPT lead
Alison Greig	Associate Head, MPT Program	Co-applicant, MPT lead
Isabeau Iqbal	Educational Developer, CTLT	Educational consultant
Amy Ho	BMLSc alumni	Project Assistant
Bruce Ma	Graduate student & CTLT GRA	Project evaluation

Kari Grain	Graduate student & CTLT GRA	Project evaluation
Carolyn Andersson	Clinical Education Officer, MPT program	Module Development Assistant
Manuel Dias	Educational Consultant, CTLT	Project Assistant
Betsa Parsa	Graduate student & GRA, MPT	Project evaluation

1.4. 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)
PATH 408		2016/2017 & 2017/2018 & 2018/19 & All future years	Fall
PHTH 534		2016/2017 & 2017/2018 & 2018/19 & All future years	Winter/Spring
PHTH 554		2016/2017 & 2017/2018 & 2018/19 & All future years	Winter
PHTH 574		2016/2017 & 2017/2018 & 2018/19 & All future years	Spring/Summer
PHTH 576		2017/2018 & 2018/19 & All future years	Winter
PATH 301		2018/19 & All future years	Fall
PATH 303 - likely		2019/20	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:
On-line module focusing on reflection and the provision of constructive written feedback (using reflection examples) was created, tested and deployed	Canvas: Clinical Education Forms & Resources https://ubc.instructure.com/courses/1546/modules
Rubric for clinical reflections	Canvas: Clinical Education Forms & Resources https://ubc.instructure.com/courses/1546/modules

Infrastructure using CANVAS to facilitate peer review of clinical reflections and provision of peer feedback	
Two PATH 408 assignments' instructions that include the peer assessment process	Year 1 on Connect Year 2 and ongoing, on Canvas https://canvas.ubc.ca/courses/4223/assignments/201178 (assignment 1 - post-grad program overview) & https://canvas.ubc.ca/courses/4223/assignments/240747 (assignment 2 – scientific abstract)
Video on peer assessment and PeerScholar	Year 1 on Connect Year 2 and ongoing, on Canvas https://canvas.ubc.ca/courses/4223/assignments/214431
Two rubrics for assessing the written PATH 408 assignments	Year 1 on Connect Year 2 and ongoing, on Canvas https://canvas.ubc.ca/courses/4223/assignments/201178 (assignment 1 - post-grad program overview) & https://canvas.ubc.ca/courses/4223/assignments/240747 (assignment 2 – scientific abstract)
In class activities lesson plans for sessions on improving written feedback skills and for practicing using the rubrics to assess example assignments	Dr. Bradley has these files & would be happy to share
Infrastructure using peerScholar to facilitate peer assessment of 2 PATH 408 assignments and provision of peer feedback	Built into peerScholar (version 2 first, then version 3) Links to these 2 assignments in peerScholar are at the bottom of the assignment descriptions on CANVAS https://canvas.ubc.ca/courses/4223/assignments/201178 (assignment 1 - post-grad program overview) & https://canvas.ubc.ca/courses/4223/assignments/240747 (assignment 2 – scientific abstract)
Survey and Focus Group questions and evaluation reports	Drs. Bradley & Greig have these files & would be happy to share
Contributed to the peerScholar UBC pilot	Summarized in CTLT's report https://docs.google.com/document/d/1CwOxN_gbMqYZH9sMR8EJ152zYHGEiDlEqAJDkpjXj3o/edit

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

Overall, we hypothesized that peer review would enhance students' learning on several levels. We hoped that our students would improve their professional, scientific, and reflective writing skills as well as their skills at giving and receiving constructive feedback.

Some of the design features of the assignments/reflections that we thought would promote improved targeted learning are in-of themselves benefits of the project for students. These included having students operate at the higher Bloom's level of evaluation/discrimination (**benefit 1**) and ensuring that students received feedback in a timelier manner (**benefit 2**).

For MPT students, improvements in clinical reflection (**benefit 3**) and the ability to provide constructive written feedback **(benefit 4)** are important since these are frequently applied clinical skills. Clinical reflection is recognized as an important step in the development of clinical reasoning skills which in turn affects the development of core professional skills (refs: (1) HL Atkinson and K Nixon. A Tool for Clinical Reasoning and Reflection Using the *International Classification of Functioning, Disability and Health* (ICF) Framework and Patient Management Model. *PHYS THER.* 2011; 91:416-430. (2) JI Murphy Using focused reflection and articulation to promote clinical reasoning: An evidence-based teaching strategy. *NURS ED PERSPECT.* 2004; 226-231). We hypothesized that students would develop their own set-point for what a meaningful reflection should be through exposure to other students' written reflections and by using the rubric and exemplars to compare/contrast different quality work.

For BMLSc students, our focus was on helping students improve their skills of scientific writing (**benefit 5**, using the scientific abstract assignment) and professional writing (**benefit 6**, e.g. report on post-graduate programs) as well as their ability to evaluate their peers work, to provide constructive written feedback and to utilize feedback in order to improve their work (**benefit 4 expanded**).

An intended benefit for the instructors in both programs was a decrease in workload (**benefit 7**). We also expected the improvements in student learning and decrease in instructor workload would be <u>sustainable</u> and that each program would expand our use of peer review processes in at one additional course (**benefit 8**). Our logic behind the sustainability was that once the peer-review systems were set up with the assignments/reflections, the supports created and activities piloted then implemented, the efforts to continue using these activities in future years would be minimal.

We anticipated that this project would have positive impact on <u>multiple cohorts</u> of students (**benefit 9**) due to the joint nature of our project and we intended to share what we learned to help Instructors in the Health Professions and in other Faculties at UBC to determine whether or how they will use peer review with their cohorts.

3.2. Were these changes/impacts achieved? How do you know they occurred? – *To what extent were intended benefits achieved or not achieved? What evaluation strategies were used? How was data collected and analyzed? 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.*

Benefits 1 (higher level learning) & 2 (faster feedback):
Via instructor reflection, we believe these benefits were achieved. The nature and design of our peer-review assignments required students to operate at the higher Bloom's level of evaluation/discrimination while they

examined peers' written work against important criteria/principles and provided feedback. The types of assignments and/or the review process promoted higher order and metacognitive learning since for MPT the assignment was to reflect on a clinical encounter and part of the BMLSc review process was to reflect on feedback received and decide what changes to make or not to make. Also, by the nature of the peer review process, students received feedback in a timelier manner which increases the usefulness of feedback. The long delay when instructors mark the assignments due to volume was eliminated as peer-provided feedback was available within a week. In the BMLSc focus group, the faster feedback was noted ("One of the benefits was receiving feedback right away, instead of waiting a couple of weeks for the instructor to mark it.")

Benefit 3 (improvements in clinical reflection):

The MPT team devised specific evaluation plans, aligned with purposes and goals, with the advice and assistance of Adriana Briseno-Garzon and the GRA. The evaluation took place in April 2018 for the full-class pilot. Data sources included student surveys and focus groups. Qualitative data from focus groups indicate that the peer review process increased engagement in reflection writing and enhanced appreciation for the role of reflection in clinical practice. Learners were more aware of the elements of quality reflection writing and the repetition of the process over six clinical placements refined the learners' skills in reflection writing.

The MPT GRA completed individual evaluation of ten randomly selected student submissions that encompass the correct ratio of students from the Northern and Rural Cohort as well as the UBC cohort. Most submissions showed improvement with grades ranging from 1/3 to 2/3 for first submission to a grade of 2/3 to 3/3 for final submission indicating improved quality of reflection of clinical experiences/situations encountered (one student was graded 3/3 initially and at completion). In addition to this review, students are required to submit a "capstone reflection" in PHTH 576 which has been running for three cohorts. 2018 was the first year that all students received a "Pass" grade on their assignment without revision indicating a deeper level of reflection and higher quality submission.

Benefit 4 (improving students' ability to evaluate their peers' work, provide constructive written feedback and to utilize feedback in order to improve their own work):

In both programs, students have structures and supports to enable them to practice giving and receiving useful constructive feedback and to reflect on their work. For the MPT Program, we can infer that students' abilities to provide constructive feedback and make use of that feedback to improve their work has occurred since the quality of clinical reflections has improved as noted above.

In the BMLSc program, students' ability to review one another's work was good. In 2017, for the Program Overview assignment, 10 reports were randomly selected (out of 14) and the project assistant assessed the reports using the same rubric used by peers to provide scores. The range of scores was identical (12-20 out of 20) and the average was 17.2 versus 18.4 for project assistant versus peer-derived. The range and average of grades provided through student peer assessment was also approximately the same as the range and average grades on similar assignments (cover letter assignment in 2016 and program overview report in 2017 and 2018) for the previous 3 years when the instructor did the marking.

Student perception data collected by survey and focus groups also indicated that students believed that their future work would be improved as a consequence of peer review. BMLSc students in 2017 and 2018 answered the questions below (29/29 responded) as follows:

Please rate your level of agreement with the following statements: As a result of these 2 peer assessment assignments	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Median
Considering and/or incorporating my peers' feedback improved the quality of my final scientific abstract	12	16	1	○	○	Agree
I feel more confident in my ability to evaluate my peers' written work	5	17	6	1	○	Agree
I feel more confident in my ability to provide useful and constructive written feedback	5	19	5	○	○	Agree

When asked if incorporating peer assessment into the PATH 408 Program Overview and the critical appraisal assignments "helped their learning", 23/29 and 27/29 said yes, respectively. The focus group cohort was asked whether the aims of improving their ability to "evaluate professional writing and provide useful and constructive feedback" and to "use feedback to improve the quality of your work" were met. All 5 students said these aims were achieved through the peer assessment assignments.

Next steps for both the MPT and BMLSc programs will be to evaluate the quality of feedback students submit to their peers by evaluating samples of student feedback and comparing these over time and with principles of constructive feedback.

Benefit 5 (improve BMLSC students' skills of scientific writing):

The evidence that indicates that ours students did improve their scientific abstract writing skills comes from student perceptions data (survey and focus group) and from a comparison of abstract drafts to final submissions.

The project assistant assessed all 14 scientific abstracts from 2017 both before peer feedback (abstract draft) and after peer feedback (final abstract). The project assistant used the same rubric the students and the instructor use to assess the abstracts. This rubric has 6 criteria, each with 3 levels of accomplishment (exemplary, competent, and developing). Ten out of 14 students had their grades increase, from draft to final.

One out of 14 had a perfect score on the draft and final abstract. Three students' scores remained the same. Students whose marks increased, improved on one, two or three criteria. The criteria for which improvements were seen between draft and final submission were: "elements and formatting" (following instructions), "abstract requirements" (abstract contents – what is required for each section), "clarity of writing", and "typos/mistakes".

From the survey, students indicated that the peer assessment assignment processes that they found to be most useful (very useful or useful) were: reading peer submissions (76%), reading peer assessment and feedback on their draft submission (79%) and revising their abstract submission (90%).

Benefit 6 (improve BMLSc students' professional writing skills):

When asked (via survey) if students thought their "professional writing is likely to improve" as a result of the peer assessment assignments, 20 out of 29 students agreed or strongly agreed, 7 were neutral and 2 disagreed. From the focus group, we learned that students weren't sure what we meant by "professional writing" and so some were uncertain about whether the course outcome of "communicating clearly and professionally especially in writing" was met. Notably all focus group participants (5/5) felt that improving their abilities to communicate clearly in writing was achieved. The main element in the peer assessment Program Overview report assignment that students found to be useful was "reading peer assessments and feedback on your report" with 21/29 saying this was very useful or useful (survey).

The implementation of peer assessment in PATH 408 went better than the pilot had. In the first year pilot and using the cover letter assignment, we learned (through the focus group and survey) that there was definite potential and that the majority of students found the peer review process to be useful. Survey and focus group data shows us that the implementation of peer assessment using peerScholar instead of Calibrated Peer Review (pilot) and using different assignments has resulted in even more positive student perceptions. In the pilot, 63% of students agreed that their professional writing is likely to improve as a result of reviewing peers' written work. The past 2 years of implementation, 70% of students agreed or strongly agreed to this same question. Instructor reflections are consistent with the notion that the peer assessment process used now is considerably improved over the pilot system and assignment.

It is significant that having peer assessment carried out thoughtfully has allowed for BMLSc students to address, practice, improve, and be assessed on several transferable skills that we espouse our graduates should attain. Program level learning outcomes that are addressed via this peer assessment work include: communicate clearly and professionally with various parties through various means; recognize their own limitations and accept constructive feedback; understand their personal role in creating the conditions for effective teamwork and productive collaborations (e.g. giving and receiving constructive feedback); show mutual respect in professional relationships.

Benefit 7 (decrease instructors' workload) & Benefit 8 (sustainability & expanded implementation)

While requiring a large up-front effort, based on our experiences we believe that our peer-review approaches are worth the effort, given the sustainable benefits to student learning and instructor workload. Reduction in instructor marking workload has led to increased time and attention that was refocused on helping students more directly (e.g., coaching students on how to give constructive feedback, critical evaluation). With respect to instructor marking workload, for PATH 408 the estimated time saving is 2.5 hours per student (so for 2018, 38 hours). Now that the assignments have been improved and the peer review systems are working to meet our requirements, we will be able to launch these assignments in future years with minimal effort. In the MPT Program, less time is required on behalf of the instructor since fewer students have to do remedial reflections.

In the BMLSc Program, the laboratory instructors for PATH 301 have implemented peer review into the laboratory report requirement this year for the first time (term 1 2018/19).

Benefit 9 (impacting <u>multiple cohorts</u> of students):

This project successfully had positive impact on <u>multiple cohorts</u> of students due to the joint nature of our project. We have shared some of what we have learned with other instructors in other Programs and will continue to disseminate our experience and findings locally at UBC and beyond.

Benefit 10 (students valued peer review):

In our proposal and interim report, we had not listed this benefit, but now that the project is "completed", it is apparent to us that having students value peer review is an important benefit. BMLSc students in 2017 and 2018 answered the questions below (29/29 responded). Clearly this is an "attitudinal" win!

<u>Before</u> completing assignments 1 and 2, my viewpoint about the value of peer assessment	Valuable (Mode)	17
	Slightly valuable (Mode)	9
	Neutral	3
<u>After</u> completing assignments 1 and 2, my viewpoint about the value of peer assessment	Very valuable	8
	Valuable (Mode)	16
	Slightly valuable	5

3.3. 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.*

Past:

CHES Scholarship Day oral presentation: I IQBAL, A Bradley, A Rankin, A Grieg and A Ho. Using student peer assessment to promote critical analysis skills and reflection abilities. Centre for Health Education Scholarship (CHES) Celebration of Scholarship, UBC, Oct 6, 2016.

A Bradley Invited presenter; Writing Across the Curriculum Community of Practice, UBC. Lead a discussion on student peer feedback. Nov 2016

A Bradley interviewed by Heather McCabe for a CTLT article/case study on peer assessment – uncertain as to when this article will come out (had been stated as July 2018, but that did not happen).

A Rankin. Clinical Reflection – Does it Occur Only in an Ivory Tower or is it Clinically and Professionally Important? Physiotherapy Practice. Vol 8(2) 2018

National Association of Clinical Education in Physiotherapy (NACEP): Reflection rubric shared with NACEP, Spring 2017

Upcoming:

Greig A, Rankin A, Bradley A. (2019). *Peer Assessment and Feedback of Written Reflections in Physiotherapy Education*. Paper accepted at the Canadian Conference on Medical Education (CCME), 13-16 April. Niagara Falls, Canada.

Greig A, Rankin A, Bradley A. (2019). *Peer Assessment and Feedback of Written Reflections in Physiotherapy Education*. Paper accepted at the International Clinical Skills Conference (ICSC), 19-22 May. Prato, Italy.

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?*

    What has changed in the way MPT students are supported to do reflections? Pilot interviews with MPT students indicated that information and resource documents on clinical reflection was scattered across various platforms, courses. This feedback provided direction to gather appropriate resources under one umbrella of the clinical education course on Connect/Canvas (PHTH - Clinical Education Forms & Resources) and facilitated the development of a module specifically designed to provide students with: examples of inadequate and deep reflection; use of a rubric (as this had also been identified as an area where students felt unprepared); as well as how to provide effective constructive feedback. The majority of students are presently submitting reflections on time and at a higher quality that improves over the course of the MPT program. Presently, Instructors review of student clinical reflections are able to be completed on a more flexible timeline. The peer review process is anticipated to continue with future cohorts.

    What has changed in the BMLSc Program as a result of this project? The course that was targeted, PATH 408, has been completely reviewed and has changed substantially as a consequence of adding 2 rounds of peer assessment in the course and thanks to what we learned in the pilot year. The course is now blended, with fact-type learning moving to outside of class (readings with guides and questions to submit; quizzes as accountability helpers) and more in class time is spent doing activities about written constructive feedback and practicing using rubrics. Overall course evaluations have remained high (4.8/5) and my sense is that this course is now much more student-centred. All assignments now have explicit learning outcomes stated and relate to course-level learning outcomes. I believe that the two peer assessment assignments are much more worthwhile than they were as stand-along assignments with instructor marking only. As far as my teaching practice, this whole process has influenced the way I approach classroom time. I prioritize content differently, always with the litmus test being "what will students take away from this?" Also, as mentioned in benefit 9, discussions about this project have resulted in peer assessment being implemented in another BMLSc course (PATH 301) by different instructors who were motivated based on hearing from me and from the students about our foray into peer assessment in PATH 408.

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?*

As stated above (benefit 7), now that the assignments and peer review systems are in place, MPT and BMLSc Programs can continue to deploy these peer-review activities yearly with minimal additional effort.

Since BMLSc has used peerScholar, our challenge may be to continue to have access to this tool. Currently UBC is evaluating peer assessment tools and has not yet decided to commit to having peerScholar as one of the campus-wide supported tools. If peerScholar does not remain available, a large effort will be required to utilize a different tool, given all of the critical features that peerScholar offers. For instance the Canvas tool only does about 1/5th of what the peerScholar tool allows us to do and would not be adequate at all.

It is anticipated in the MPT Program that future development of reflection content will be less labor intensive and focused on updating student resources with the use of Canvas. Presently, it is still difficult to monitor the quality of student feedback and it is hoped that in the future more resources can be dedicated to this area.