

Directions: An electronic copy can be found at: www.sfu.ca/tlgrants/handouts. Please submit reports to Cheryl Amundsen at camundsa@sfu.ca. Generally, final reports are uploaded with project descriptions on the grants program website (www.sfu.ca/tlgrants). If you do not want your final report uploaded, for any reason, please let Cheryl know when you submit it.

Title of project: Engaging Students in Sustainability Learning: Exploration of Reading-related Activities

Principal Applicant

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Collaborator(s)

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 Position: Doctoral student and sessional instructor
 Faculty: Environment
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Part I – Report project findings

1. During the project, did you do anything differently than planned in your final grant proposal? If yes, please describe and explain why.

In our final grant proposal, we had planned to implement four activities, two pre class and two in class, in order to increase student engagement with the assigned readings. We did implement these four activities and conducted five student evaluations (one for each activity and one final, overall evaluation). The project implementation therefore followed the proposed path.

2. Organize your findings in a way that makes sense to you, but please attend to the section in your Final Proposal titled “Contents of Final Report”.

In this digital and fast-paced era, peer-reviewed articles and heavy conventional textbooks may become cumbersome for many students who eventually lose their interest or focus quickly after the term starts. For our project, we focused on experimenting with teaching and learning techniques that can help animate upper-division and graduate seminars and provide students with motivation to do the –often dry or long– weekly readings carefully and critically.

In order to incorporate such techniques, we redesigned the syllabus of the course SCD/REM 301 “Sustainable Community Development Theory and Practice”, a 3rd year course taught in person in the fall term. As seen in the graph below, the 22 students that took this course in the fall 2016 came from a variety of backgrounds:

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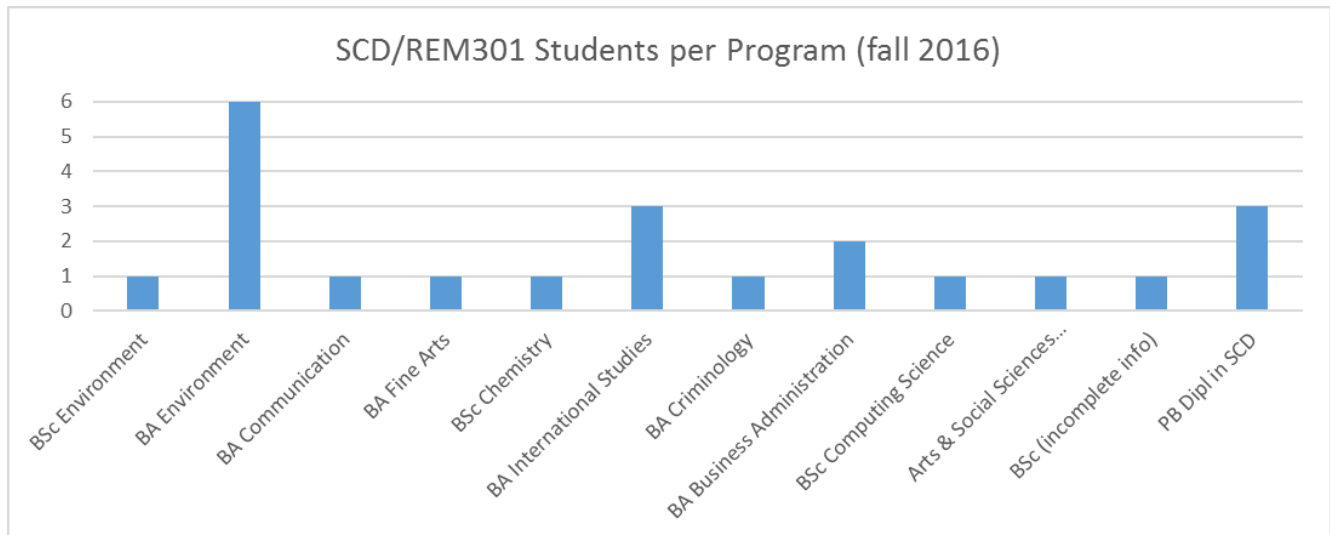


Figure 1: Background of students enrolled in SCD/REM 301 in the fall term 2016.

Following an exploration of potential activities, through a brief literature review and with valuable input from our advisors with the ISTLD, Cheryl Amundsen and Laura D'Amico, we chose four different kinds of activities, two taking place pre-class, on Canvas, and two taking place in the classroom, spread throughout the semester. All activities were carefully selected and directly linked to specific readings assigned for their respective week:

- **Week 2 – Literature circles**

That week, students were learning concepts such as resilience, systems thinking, and community transitioning to a low carbon future. Among the assigned readings, we chose three on which we based the activity: a video on the Transition Town movement, a website containing interactive maps and statistical and other information about transition towns worldwide, and a short handbook discussing the Transition Network.

We adapted the Literature Circles technique from www.litcircles.org, and split students into five groups; each student was assigned a specific role to play in the group: 'discussion director', 'vocabulary/concept enricher', literary luminary', and 'checker'. Each group was given a handout with discussion prompts such as "Why would a community want to become a transition town" and "Provide 1-2 recommendations for communities that seek to transition to a low-carbon future".

In order to evaluate the effectiveness of this activity, the instructor observed the groups working and made notes, and we also asked students to complete a short questionnaire. Based on the instructor's observations, we know that all students participated in the group work to some extent, even those who had clearly stated that they weren't prepared at all. All five groups provided thoughtful responses to the prompts we gave them and meaningful recommendations with regard to advancing the transition town movement.

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Based on the evaluation questionnaire (sample: 19 students), we learned that about 50% of the students reported being fully prepared for the activity whereas 90% did participate actively in the discussion even if they weren't fully prepared for it (figure 2). Figure 3 summarizes the students' agreement ('strongly agree' or 'agree') with the statements we provided them with in the questionnaire.

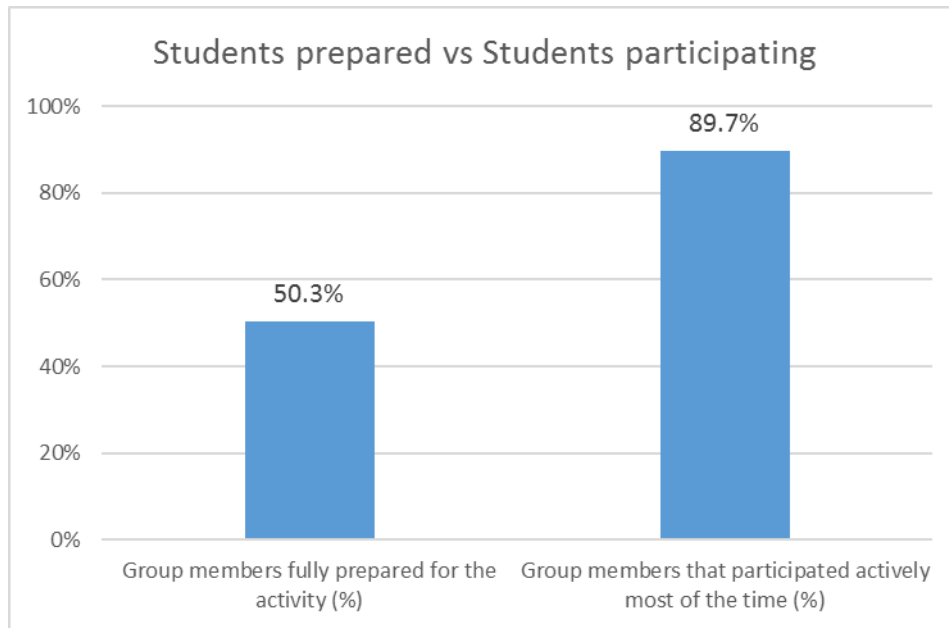


Figure 2: Comparison of students fully prepared for the activity versus students who actually, actively participated in it.

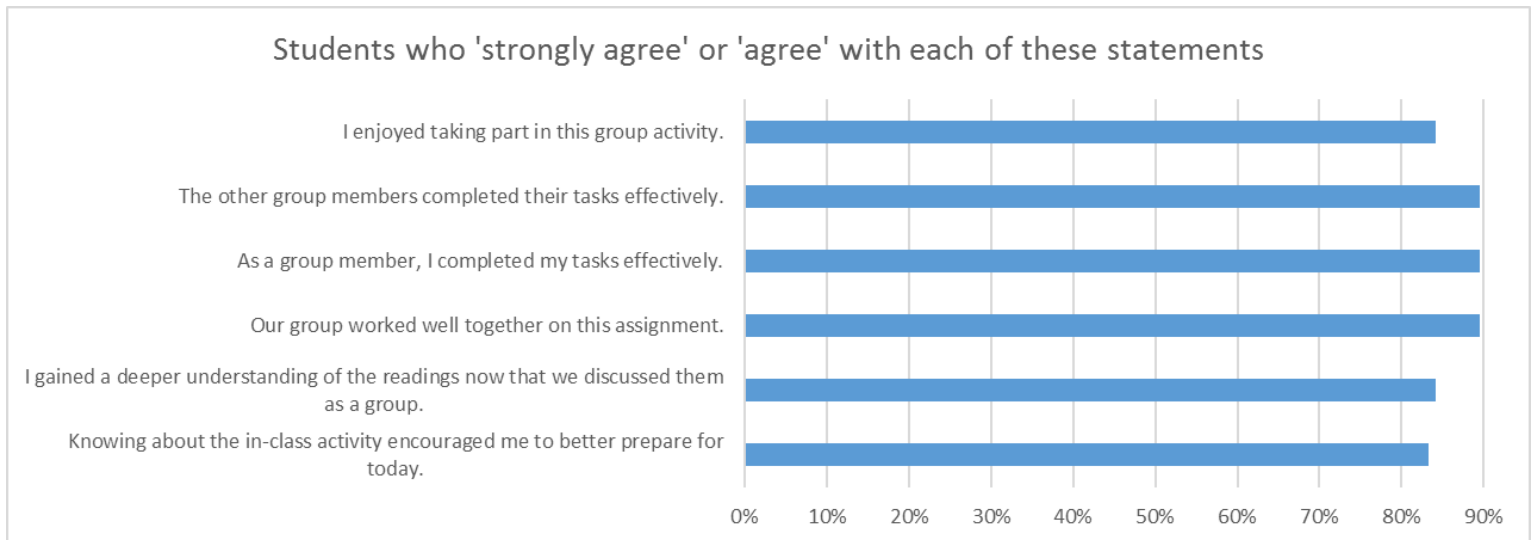


Figure 3: Percentage of students who 'strongly agree' or 'agree' with the statements shown above.

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- **Week 4 – Double-entry journal**

On week 4, the topic was “Regionalism and localism in Sustainable Community Development” and students were required to prepare two readings, a peer-reviewed paper and a doctoral dissertation chapter, with the option of a third reading, a book chapter which we assigned as “recommended” but not “required”. For this activity, students had to choose one of the three readings and prepare a “double-entry journal” of a maximum of 200 words in total: entry # 1 would include a summary of their notes about what they found most meaningful or controversial in the reading, and entry # 2 would include a summary of their notes about what they found significant in the reading or what they agreed or disagreed with. This activity took place before the class, as students uploaded their ‘journals’ on Canvas and were requested to prepare for an in-class debrief.

The evaluation questionnaire aimed to understand how students perceived this activity with regard to their learning. Their responses to the first question about which reading they prepared for their ‘journal’ show that interestingly most of them chose the academic, peer-reviewed paper (figure 4) – which was also the shortest reading of the three, potentially indicating the lack of time and increasing workload as the semester unfolded. The responses to the second question, i.e. the extent to which they agree with the statements provided, were somewhat expected (figure 5) and also consistent with comments they made such as that the activity “was nice, short and helped in actually understanding the readings”. Also, one student commented that “the activity would be a nice weekly thing”.

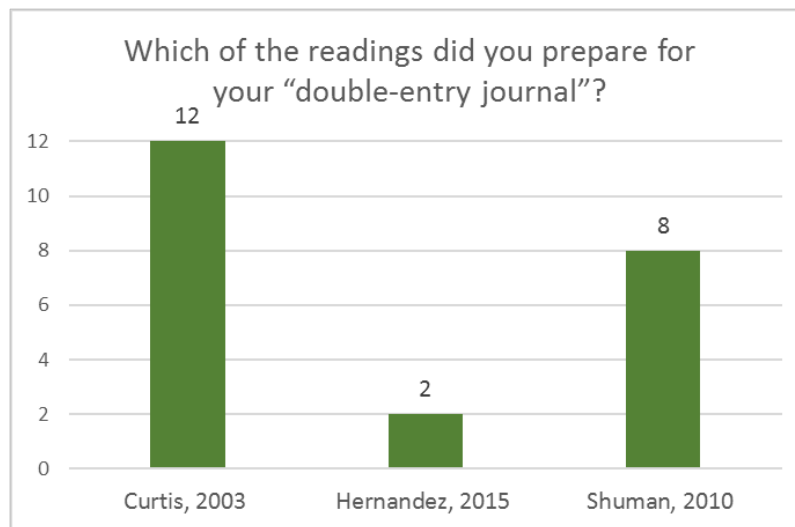


Figure 4: Student responses to the question “Which of the readings did you prepare for the “double-entry journal”?”

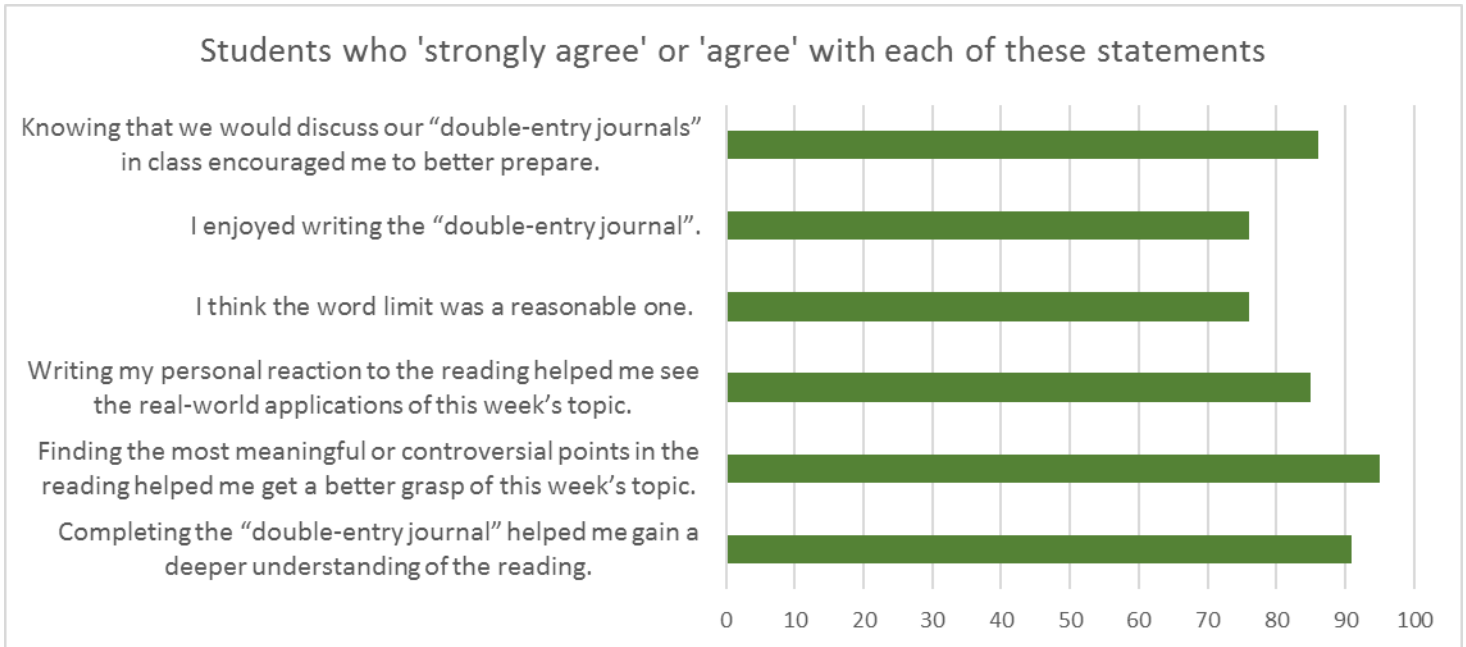


Figure 5: Percentage of students who 'strongly agree' or 'agree' with the statements shown above

- **Week 8 – Fishbowl debate**

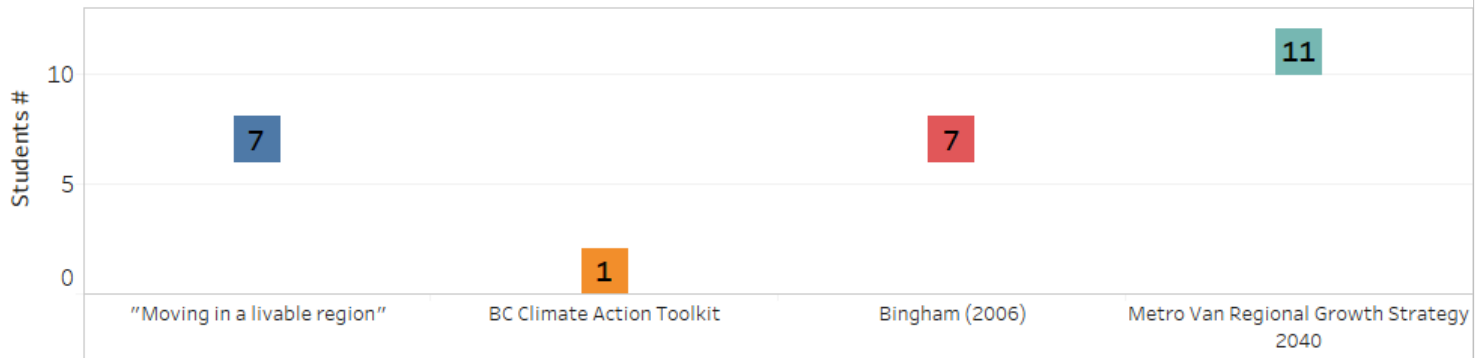
Adapting the fishbowl technique, we developed a debate around the topic of the transit referendum that took place in Metro Vancouver in 2015. Students were randomly (through Canvas) assigned to one of two groups, one supporting the "YES" side and one supporting the "NO" side of the referendum. Then they were asked to prepare for their own side of the debate by using several resources we provided (mainly governmental and non-governmental websites and videos). The required readings for that week were: a peer-reviewed paper (Bingham 2006), the Metro Vancouver Regional Growth Strategy for 2040, and the website of the BC Climate Action Toolkit.

Once in class, all students secretly voted for their preferred representatives (we used an anonymous Google survey), and we set up the classroom for the debate. Three students from each side were in the 'fishbowl', whereas the others were assigned an observer role. The observers were actively listening to the debate and had to fill out specific observation worksheets that we handed out.

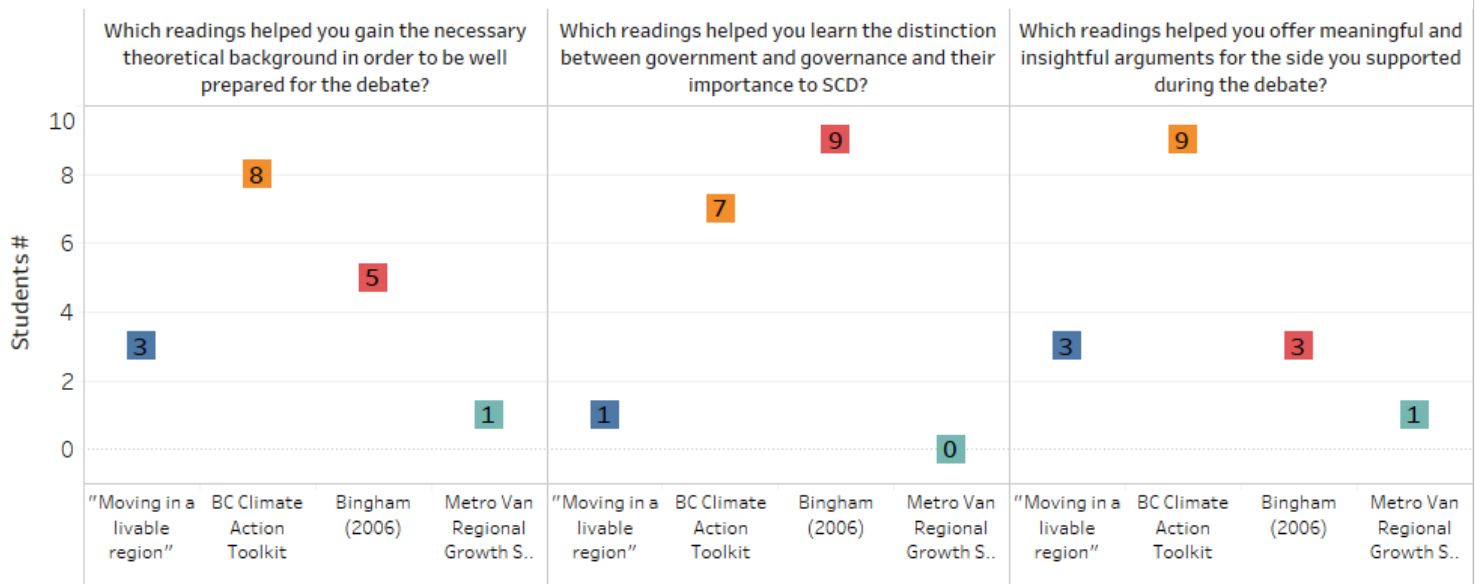
In our evaluation questionnaires, we wanted to find out the correlation between (1) the student perception of learning or participating in the debate (for the questions asked, see figure 6 below) and (2) the three required readings and a fourth reading we had assigned, which was a website providing arguments for both sides of the debate. When analyzing the questionnaire data, we were astonished to see that, although *just one* student reported having used the BC Climate Action Toolkit in his/her preparation for the debate, approximately *half* of the students stated that it was this specific reading that helped them achieve goals such as gain theoretical background for the debate, learn about government and governance, and offer meaningful arguments during the debate (figure 6). The opposite result came up with regard to the Metro Vancouver Regional Growth Strategy.

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Which of the readings did you prepare for the fishbowl debate?



Other questions:



Another way of looking at the same data:

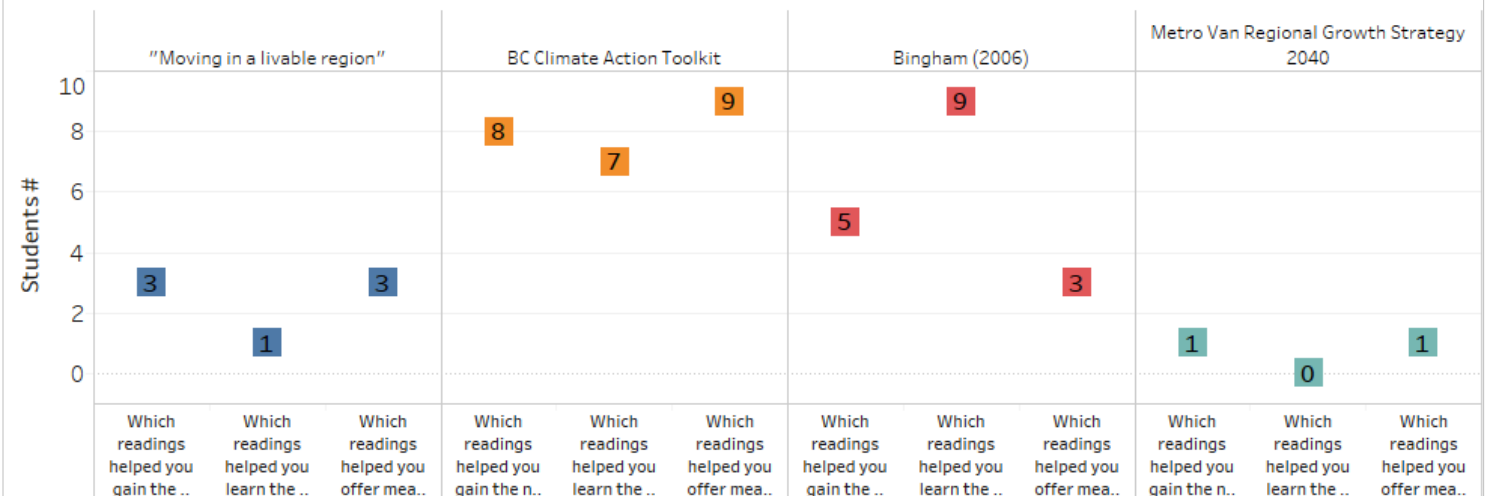


Figure 6: Analysis of the questionnaires evaluating the fishbowl debate.

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- **Week 11 – Double-tweet discussion**

The topic for this activity was “Conscious consumption and sustainable communities” and it took the form of a pre-class discussion on Canvas. The assigned readings for that week (and the activity) were two academic papers from peer-reviewed journals on the topic of ecological footprint, and one video on “Enabling sustainable lifestyles with new business models” from the renowned Centre for Sustainable Consumption and Production. Students were requested to write their own thoughts, experiences, ideas, etc. about the impact of being a conscious consumer, and engage in discussion on Canvas, following specific guidelines, such as to not exceed 300 characters in total in each post (including spaces), to respond to other students (i.e. post more than once), and also prepare for class debrief of the activity.

In the evaluation questionnaire, we again asked the students to tell us the extent to which they agree with several statements, but also to let us know which of the three readings they had prepared in order to do the activity. The results of the first question are below in figure 7, which clearly shows how beneficial the activity was for the vast majority of the students in respect to their perception of learning. The answers to the second question amazed us, as most students reported that they had – at least to some extent– prepared most of the assigned material (figure 8). Some students commented that the activity helped them think about “how to practically apply’ the theory, and others thought that the 300-character limit “allowed them to be more precise”.

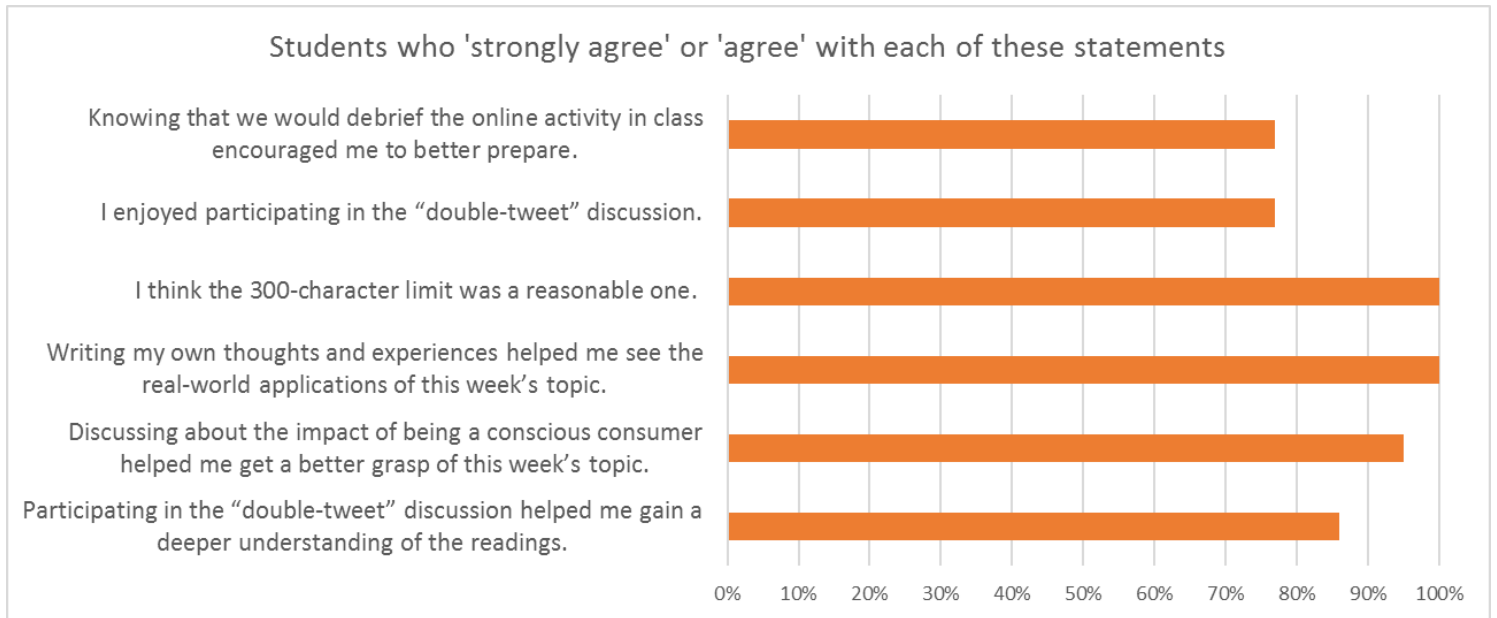


Figure 7: Percentage of students who ‘strongly agree’ or ‘agree’ with the statements shown above

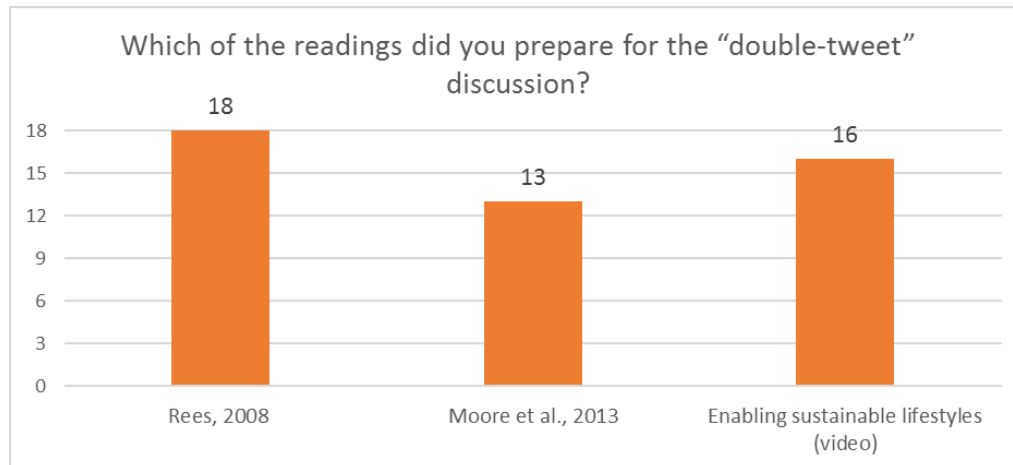
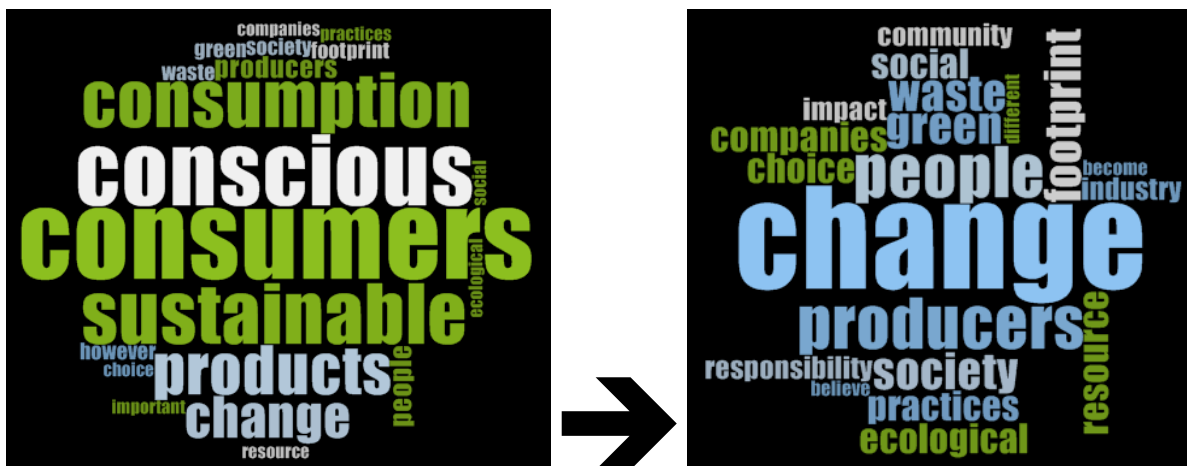


Figure 8: Student responses to the question "Which of the readings did you prepare for the "double-tweet" discussion?"

We also attempted to summarize the themes discussed by using the qualitative data analysis software NVivo. While all students were mainly using wording that is directly related to the weekly topic (consumption, conscious consumers, sustainable products, etc.), when we removed these words from the query in NVivo, we saw a 'cloud' with well-thought wording, such as change, choice, society, and responsibility. These are all indicators that students not only read the readings assigned for that week but that they also reflected upon them and thus contributed relevant and meaningful posts. The following figures (8 and 9) successfully depict this activity:



Figures 8 & 9: From an expected word cloud (left) to an unexpected one (right).

- **Findings from the evaluation of all activities**

During the last class, we asked students to evaluate the four activities altogether by answering to three questions only: (1) Did you find that any of the four activities increased your learning?; (2) Did any activity motivate you to participate more in the course?, and (3) Do you believe that activities (before class or in class) help you engage with weekly assigned readings? As seen below (figure 10),

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most students thought that the online discussions with the short posts (pre-class activities) were the most helpful in increasing their learning, however knowing that they would participate in a class debate was the factor that motivated them the most in preparing the weekly readings.

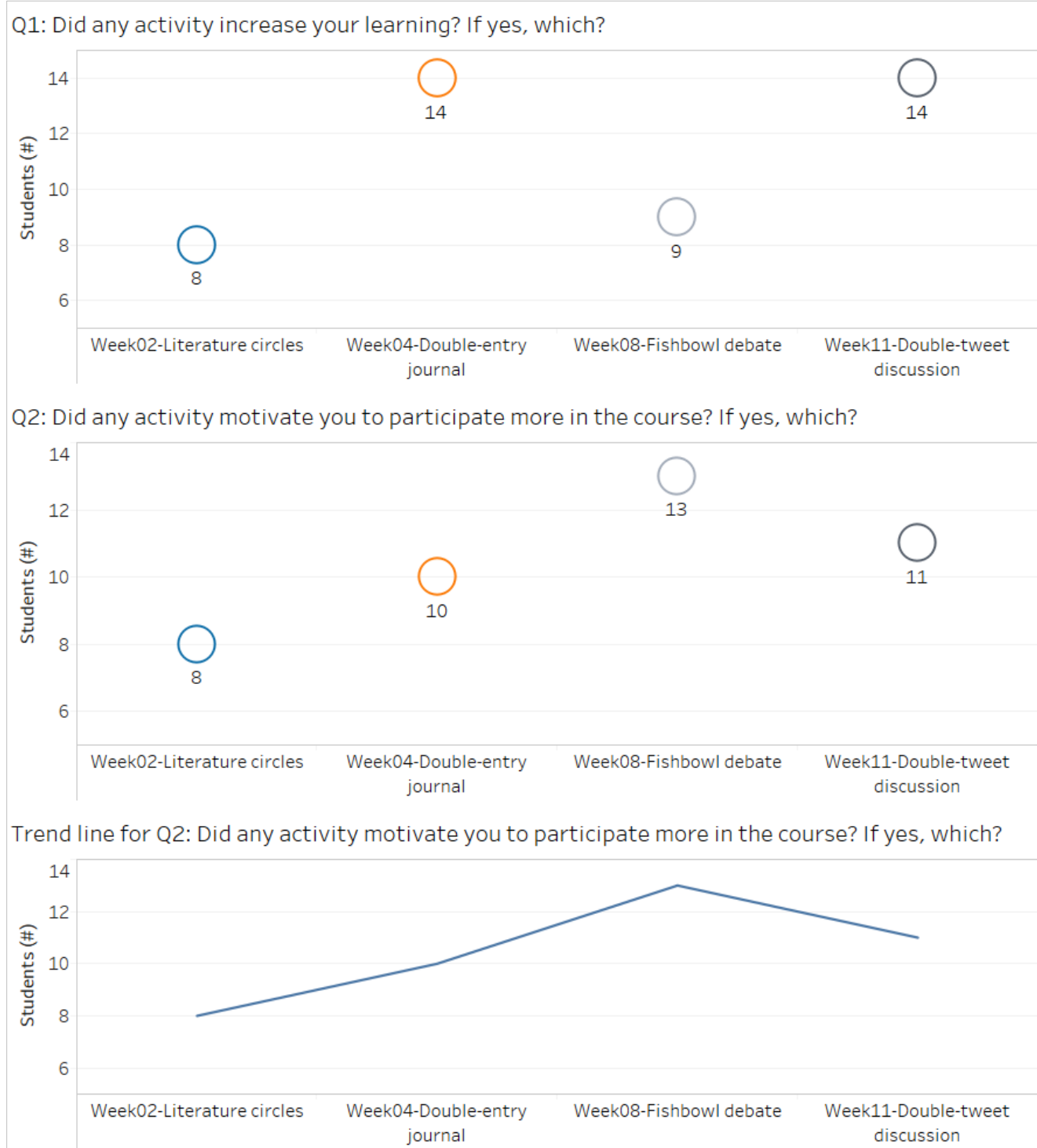


Figure 10: Evaluation of all four activities during the final week of classes (November 29, 2016).

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Overall, students believe that activities that are directly related to the readings encouraged them to engage longer and more deeply with the readings. While some students admitted that they prepared the readings out of anticipation of being potentially called out in class, they also felt that preparing for activities was putting pressure on them, in a good sense, to be ready for class. Other students stated that, thanks to the activities, they were given more incentives to read the assigned material, and particularly to read it closely and even do some additional research on their own.

Moreover, it seems that the limits in text entry (word or character limit) helped them be concise in stating and supporting their arguments. Some students reported and the instructor seconds (based on her observations) that pre-class and in-class activities encouraged conversation as students “had more things to say” and felt motivated to discuss their own ideas and viewpoints as well, especially because they could relate these ideas to theory from the readings. The instructor also observed that students engaged more in an activity that required participation in group work (such as the literature circles) than in a class discussion with open-ended prompts (such as traditional discussions in class).

Finally, the instructor reported that the activities have had a positive impact in student understanding of the readings and the course concepts. This is based upon two measurable observations: most students made a good use of a variety of course concepts in their term papers (data source: their grades and instructor comments), and most students are now in position to understand and define the major course concepts (data source: background knowledge evaluation forms, weeks 1 and 12) (figure 11).

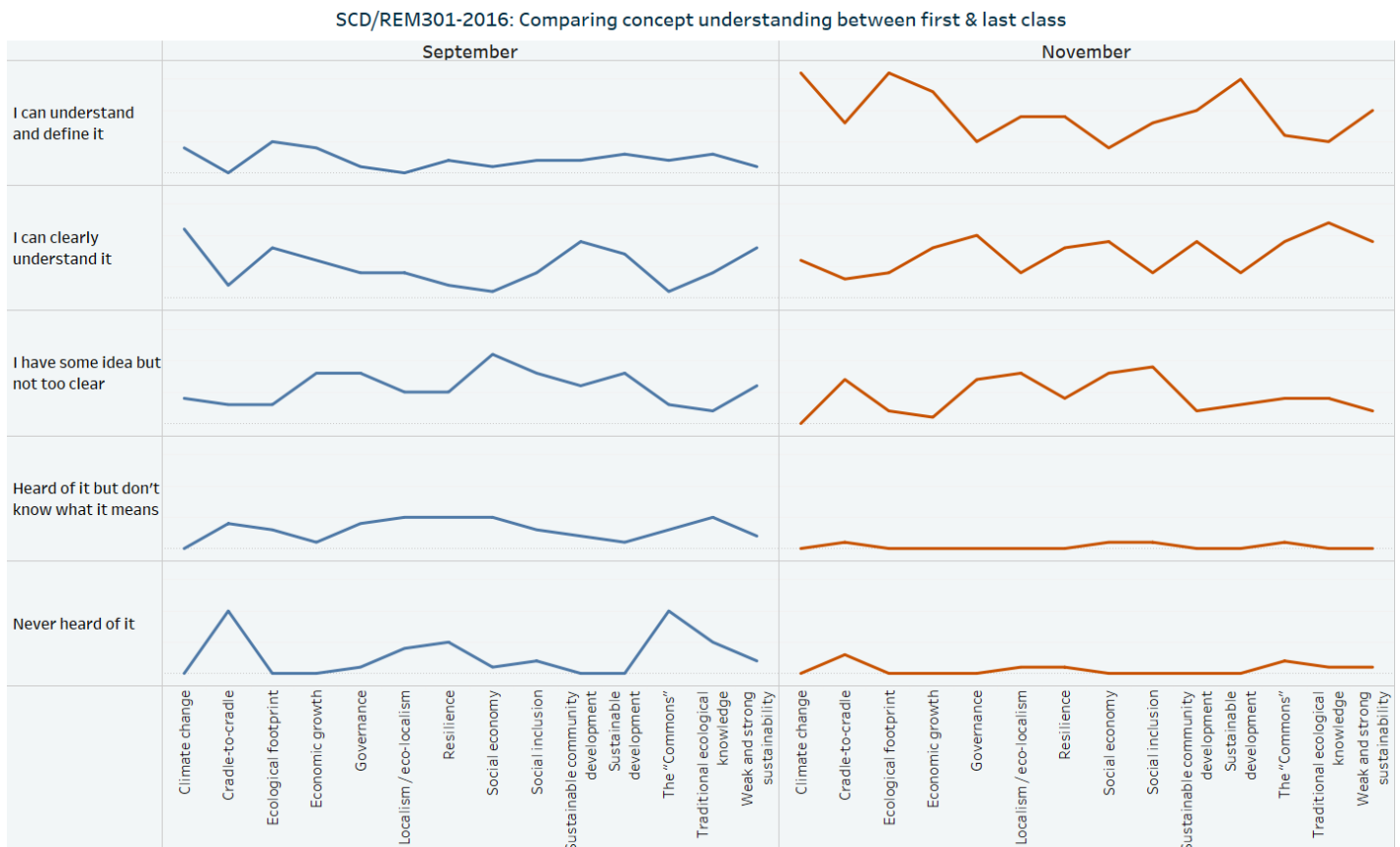


Figure 11: Results of the background knowledge evaluation forms, completed by the students in weeks 1 & 12.

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Part II – Implications and dissemination

1. Changes in my/our teaching:

Have you changed anything (or plan to change anything) in your teaching of particular courses or in general, because of your experiences in conducting this project? Please provide examples.

Based on the findings and the experience gained from this project, we would like to offer several recommendations in order to improve teaching – ours and that of other instructors at SFU. Firstly, we will likely keep using activities that provide a review of the course material, for instance the double-entry journals as pre-class reflection on theory as well as variations of the literature circles as in-class group work. The online, pre-class ‘journal’ activity can be a powerful tool to increase both student engagement and understanding of the course concepts, particularly it occurs at least weekly or biweekly and when rules such as word/character limits apply.

Additionally, in our teaching, we will incorporate lively, small-group activities at the beginning of most classes (as opposed to after the lecture part of the class), as through this project we saw how important it is for students to review the course material upfront and start exchanging their knowledge and viewpoints with their peers even before the instructor proceeds with lecturing. Finally, we believe that it is important that the instructor is well prepared for each activity and that he/she provides students with detailed instructions and well-designed worksheets, in order to enhance student engagement with the material and the activity.

2. Sharing findings with my/our colleagues:

We asked that you share information about your project with close colleagues either in a formal or informal way. How did you share your findings with colleagues?

We discussed the project with colleagues in our research group within the Centre for Sustainable Community Development and will present the project results and findings to them in our next research group meeting in January 2017.

3. Impact of the project on my/our activities:

Have you become involved in other activities or projects (e.g., departmental committees, curriculum projects, other grant projects) because of your experience in conducting this project?

Thanks to the experience from previous and current TLDG projects, we also applied for and received an Open Educational Resources Grant in order to complement the activities of the current TLDG project with freely accessible resources that would enable students to focus on the actual learning rather than the means for it. This partnership allowed us to be flexible in the assigned readings and extend the knowledge and experience we gained to other instructors and projects.

4. Publications and conference presentations

If you have presented your project at a conference or have a publication about your project, please provide the citation. We would like to accurately record and promote the work of project grantees.

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We haven't presented it at a conference or published about it yet (please see next question).

5. Future dissemination plans

Do you have plans for future dissemination of your project?

We plan to present the project in the 2017 Teaching and Learning Symposium at SFU and in at least one of these events in 2017: the International Society for the Scholarship of Teaching and Learning conference on "Reaching New Heights", the BC Campus Festival of Learning, and the Canadian Association for University Continuing Education conference on "Currents of Change".

6. Students involved

If this project was implemented in a particular course(s), please list the course(s), semester(s) and approximate number of students in the Table below:

Course	Semester	Approximate number of students
SCD/REM 301	Fall 2016	<input checked="" type="checkbox"/> 0-30 <input type="checkbox"/> 30-100 <input type="checkbox"/> 100+

Part III – RA involvement

We have 'heard' from a number of project research assistants that they very much valued their experience and the support provided. We would like to collect this feedback more systematically and have developed an anonymous survey for this purpose. We would like to send this survey link to the RA(s) who worked with you. Please provide contact information.

Name(s)	Email
Maria Spiliotopoulou	mariaspi@sfu.ca