Providing sustainable scientific writing support for graduate engineering students by creating a local scientific learning community

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YOU ARE NOT ALONE
The "Service d’aide à la rédaction d’articles" (SARA) is a local scientific learning community of students, researchers, and experts at ÉTS, helping each other progress in scientific writing and publication.

SARA provides
• Writing resources
• Activities
• Sharing expertise / experience

sara.etsmtl.ca

{ SARA }
What are some issues and needs for graduate students related to scientific writing?

• Graduate students feel isolated in their writing tasks [2,7]
• Engineering students are hard to attract to writing activities [5]
• Engineering students appreciate structured activities
• Engineering students like to make progress on their own work during activities

• However – these students are willing to participate in writing activities under the right circumstances
Why are traditional writing support models harder to sustain / not enough?

• Graduate supervisors often overloaded [6]
• English as a second language (ESL) science and engineering students report supervisors often “take over” task [10]
• Student Services / Writing Centres often overtaxed [5]
  • Difficult to offer **continued, personalized** support and **feedback** to students
  • Difficult to offer support related to engineering-specific scientific communication
What do we mean by “sustainable” writing support?

- On-going support
- Accessible support
- Scalable support

Question: Can we provide sustainable writing support by leveraging existing resources in the university community?
Sustainable writing support for what needs?

• *on-going, accessible, and scalable* support for
  * Personalized Feedback
  * Shared Expertise
  * Motivation
  * Experience Reviewing
  * Breaking Isolation

• “Renewable” *source* to sustain this support: our engineering community itself

• We tap into a pool of graduate students, faculty, and staff to create learning community of peers
Learning community model

• A learning community: Group engaged in intellectual interaction for the purpose of learning [11]
  • pragmatic + effective means of educating students
  • students involved in thinking, questioning, and actively seeking knowledge
• Graduate students = novice researchers / writers who must be initiated into the culture of academic writing [2]
Student driven and educator guided: Our sustainable, learning community model

• Launched by four professors who saw need in our school
• Library eventually involved
  • a librarian dedicating some time (10 hrs / week)
  • part time writing support staff member (14 hrs / week)
• Voluntary and Free for community participants
• Goal: Writing /communication support without huge dedication of resources
Writing workflow for some students
Writing Blitz

- Avoids “back loading” [21]
- Writing easier when
  - multiple, smaller steps [2]
  - with feedback [2]
  - regular schedule [8, 22]
  - specific goals in mind [8, 22]
- Students need structure in writing practice
  - Tools
  - Experience
  - *perceived* availability of time
Writing workflow for some students

- Personalized Feedback
- Shared Expertise
- Motivation
- Experience Reviewing
- Breaking Isolation
Writing Support Groups

• Regular meeting of small groups
• Exchange texts and give feedback

• Novices become mentors
• Diverse domains helps focus on clarity [24]
• Social bonds
Writing workflow for some students

- Personalized Feedback
- Shared Expertise
- Motivation
- Experience Reviewing
- Breaking Isolation
Online Peer Review

• Volunteer student reviewers
• Goal is not proofreading
• Feedback on clarity
• Multiple reviewers per article
Writing workflow for some students

- Personalized Feedback
- Shared Expertise
- Motivation
- Experience Reviewing
- Breaking Isolation

Structured template review forms [19]
Feedback to reviewers on their review [19]

More consistent review quality

Revisions made

Writing Blitz

Writing Support Group

Draft ready

Peer Review Service

Feedback incorporated

Submit to conference or journal
Activities for learning community

- Personalized Feedback
- Shared Expertise
- Motivation
- Experience Reviewing
- Breaking Isolation
Ongoing and future projects

• We have integrated these activities within a single engineering research group setting with two different research groups [14] (presented earlier today)
• Online toolkits for students to organize and animate activities on their own
• Online toolkits for other universities to organize and animate writing support activities leading to a local scientific learning community
Is scientific writing / communication support possible without huge dedication of resources?

• Yes!

• Promote activities that encourage a local scientific learning community and your students will come
YOUR STUDENTS DON’T NEED TO BE ALONE
References can be found in P. Lala, F. Langevin Harnois, G. El Boussaidi, C. Desrosiers, and C. Laporte, “Providing sustainable scientific writing support for graduate engineering students by creating a local scientific learning community,” presented at the 2018 ASEE Annual Conference & Exposition, Salt Lake City, UT, 2018.
A recent small survey getting volunteer reviewer feedback from Peer Review Service

### Reviewer Feedback

- **The time it took me to be a reviewer was manageable**: 25.0% Strongly Agree, 50.0% Agree, 25.0% Neutral
- **Being a reviewer was gratifying**: 50.0% Strongly Agree, 50.0% Agree
- **Reviewing the writing of my peers helped me with my own writing**: 25.0% Strongly Agree, 50.0% Agree, 25.0% Neutral
- **Being a reviewer helped me develop skills in reviewing scientific papers**: 75.0% Strongly Agree, 25.0% Agree

*Strongly Agree: 5 | 4 | 3 | 2 | 1 Strongly Disagree*

*n=4*
A recent small survey getting participant feedback on a Support Group activity.

<table>
<thead>
<tr>
<th>Feedback on Support Group Activity</th>
<th>Strongly Agree</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I found it useful to have this activity in a group setting</td>
<td>75.0%</td>
<td></td>
<td></td>
<td></td>
<td>25.0%</td>
<td></td>
</tr>
<tr>
<td>Giving feedback on the presentations by my peers helped me with my own presentation</td>
<td>50.0%</td>
<td>50.0%</td>
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<tr>
<td>The coaching group helped me develop my presenting skills</td>
<td>37.5%</td>
<td>37.5%</td>
<td></td>
<td></td>
<td>25.0%</td>
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