

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

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An illustration of an astronaut in a white spacesuit with a blue helmet, floating in space. A red tether connects the astronaut to a satellite. The satellite has a brown body with a small screen and buttons, a long rectangular solar panel array, and a small dish antenna. The background is a dark space filled with white stars.

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

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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



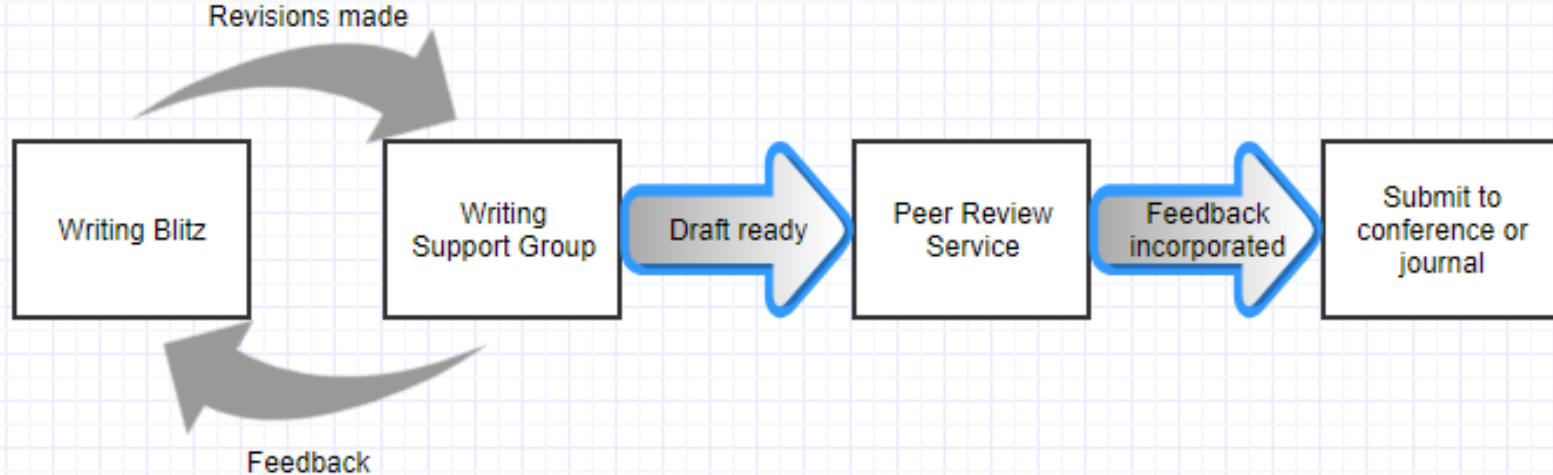
- A learning community: Group engaged in intellectual interaction for the purpose of learning [11]
 - pragmatic + effective means of educating students
 - students involved in thinking, questioning, and actively seeking knowledge
- Graduate students = novice researchers / writers who must be initiated 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

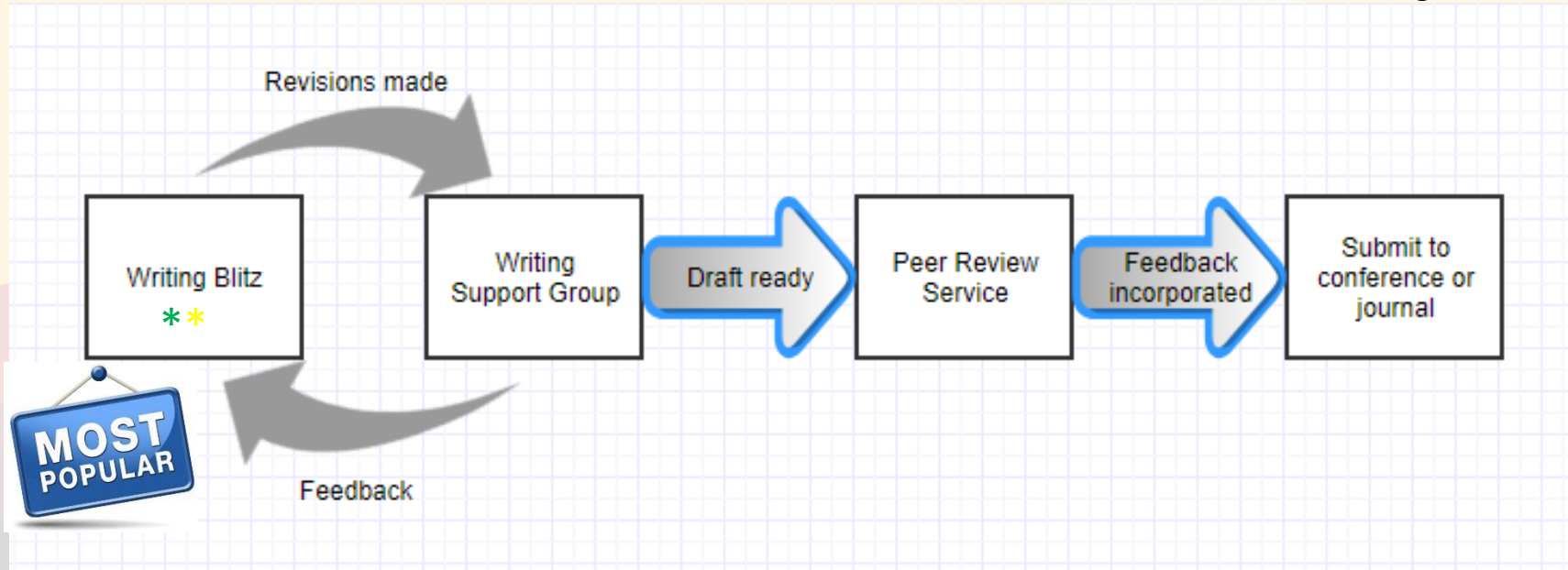


Writing Blitz

- 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

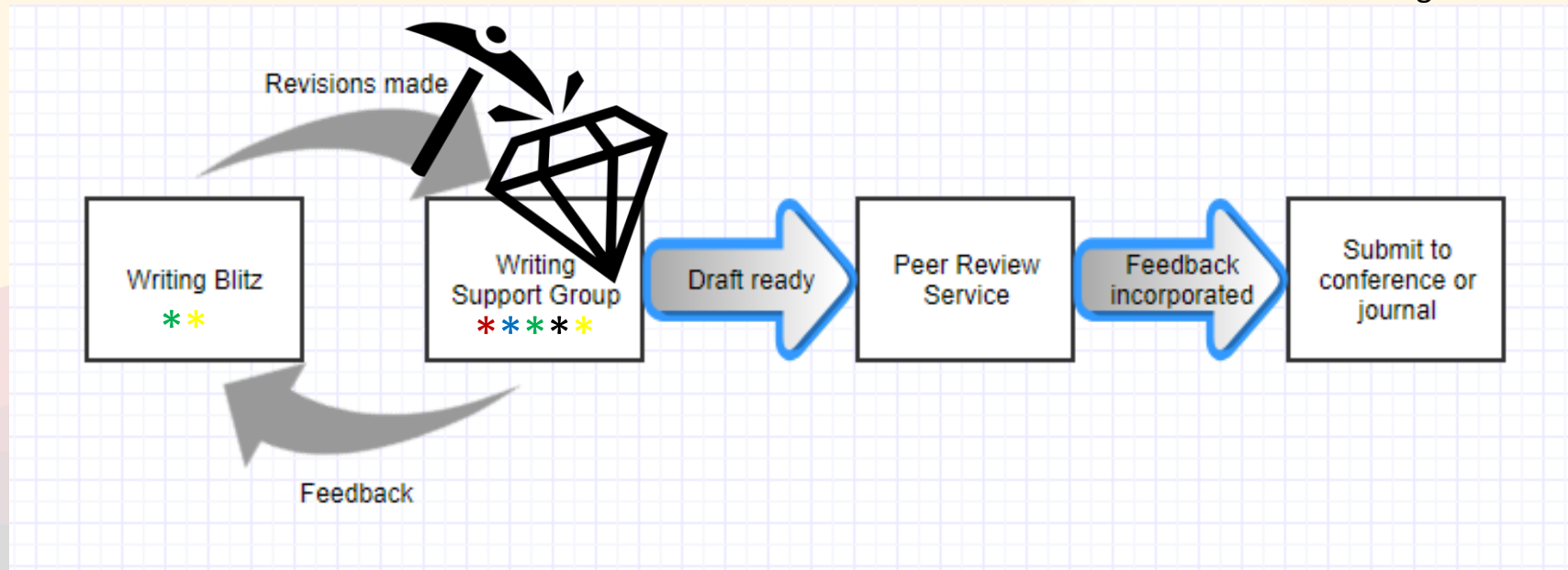


Writing Support
Group

- Novices become mentors
- Diverse domains helps focus on clarity [24]
- Social bonds

Writing workflow for some students

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Online Peer Review

- Volunteer student reviewers
- Goal is not proofreading
- Feedback on clarity
- Multiple reviewers per article



Online Peer
Review

Writing workflow for some students

Feedback to reviewers on their review [19]

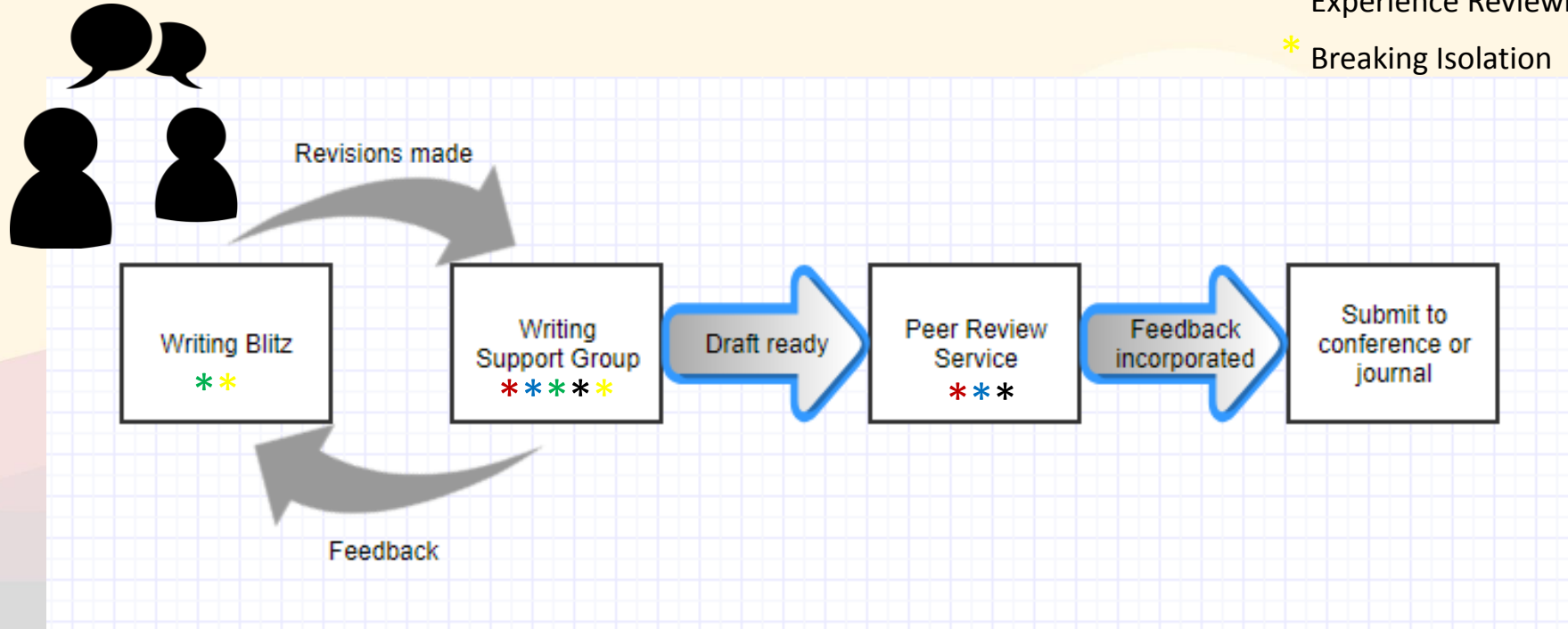
Structured template review forms [19]

- * Personalized Feedback
- * Shared Expertise
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Activities for learning community

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



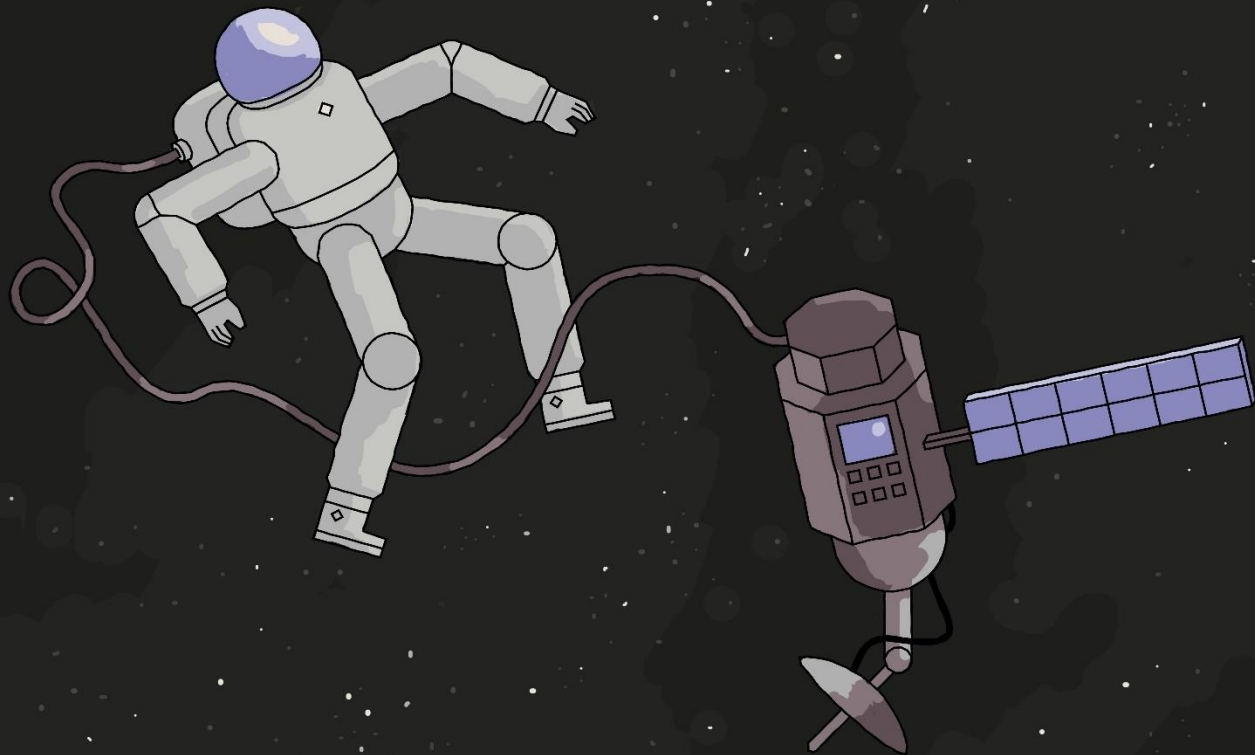
Ongoing and future projects

- 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





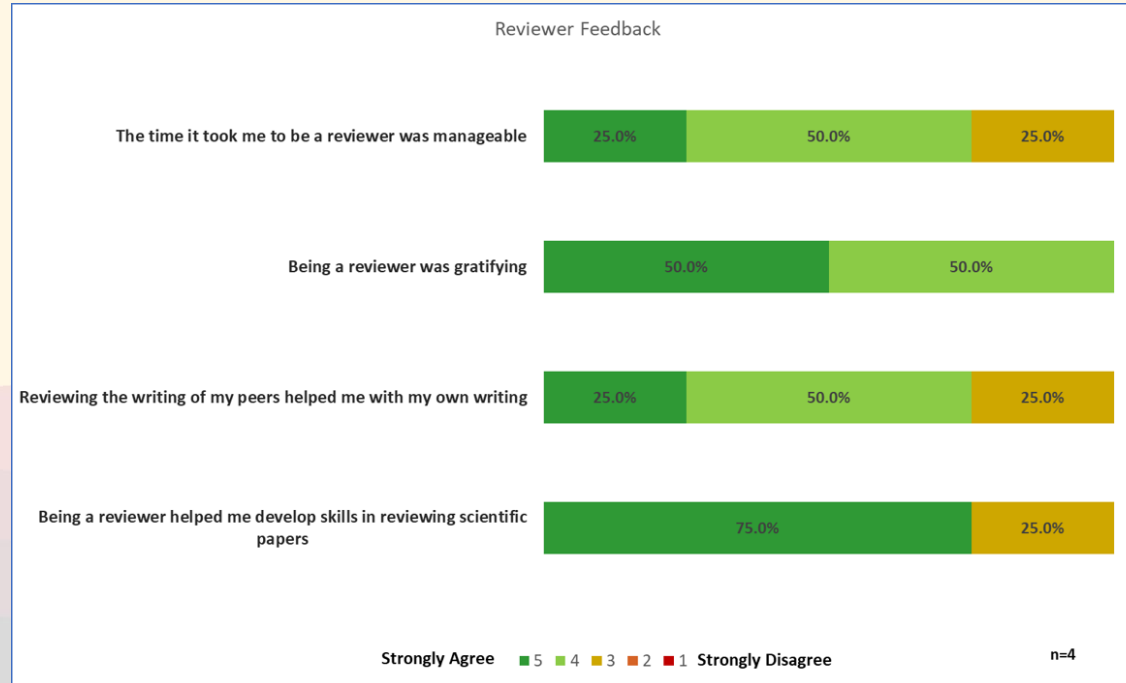
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References can be found in

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



A recent small survey getting participant feedback on a Support Group activity

