



WIP: Virtual Writing Group Participation: Surprises & Unintended Outcomes

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Introduction & Background

This work-in-progress paper emerged from the shared experience of participation in a Virtual Writing Group (VWG) composed of early career engineering education researchers (EER) in a variety of positions at different institutions. In general, this particular group of EERs had limited resources and access to a peer community at their respective institutions, therefore, the VWG was formed with the intention to spur EER scholarly activity and output. Faculty in similar situations have resorted to virtual groups (comprising of peers located at different universities) due to the many benefits including networking, accountability, peer feedback, and developing a sense of belonging, to name a few. Moreover, for many EERs who attempt to get by without access to a peer group (on-campus or otherwise), lack of connection and peer feedback has the potential to decrease the likelihood of success in scholarly endeavors. This collaborative autoethnographic study of participation in a VWG, participants noted surprises and unintended outcomes which was achieved in just four weeks of group meetings. Specifically, the participants experienced phases of team development somewhat like Tuckman's well-known Stages of Team Development [1]. Based on these findings, we propose a high-level conceptual framework of group development specific to the development of collaborative communities aimed to support research goals within engineering education. To confirm preliminary results, we are soliciting feedback on the proposed conceptual framework.

The field of Engineering Education is a relatively new discipline that has been growing in number of researchers and students in recent years [2, 3]. Despite the recent development of departments and degree-programs, many engineering education researchers lack support structures to contribute to their success and are often seen as lone wolves in their departments. Moreover, a number of issues including a "chilly climate" and other factors leading to imposter syndrome are common for female engineering faculty [4]. The powerful combination of being the lone wolf (i.e., *I have no one to work with*) coupled with imposter syndrome (i.e., *I'm not good enough to work with anyone*) makes finding relevant and supportive research support difficult for many early-career engineering educators.

Current approaches to address faculty success include informal "team building" outings (e.g., rock climbing, group dinners, sports game, happy hour), formal "anonymous" peer performance evaluation (e.g., 360, CATME), formal programs (e.g., National Center for Faculty Development & Diversity Faculty Success Program), as well as traditional mentoring or peer mentoring programs. These approaches have merit but also present obstacles. For example, team building can feel arbitrary and unrelated, while peer feedback is not pertinent to how faculty success in research is often measured. Formal programs can be quite costly, especially for researchers in teaching-focused roles. Mentoring programs while crucial in many scenarios require resources, training, structure, participation in order to have high impact on both the mentor and mentee. Unfortunately, not all Colleges and Universities have the resources, time, personnel, or structure to offer a beneficial mentoring program to their faculty (especially those in non-tenure positions).

However, other less explored approaches can help facilitate faculty success such as virtual support systems and learning communities [5-8]. These virtual environments can help address issues of targeted support, particularly through VWGs. Writing and support groups are no stranger to engineering education [9-11], and VWGs offer many benefits [12] including networking, accountability, feedback, increased motivation, a sense of belonging, emotional support, and many others.

Methods

Due to the nature of the research goals, a collaborative autoethnographic approach [13] was appropriate. Autoethnography uses self-reflection and writing to understand and explore anecdotal and personal experiences which we hoped would allow for a deeper connection across our individual stories as well as contribute to a wider understanding of individual perspectives. Using a collaborative autoethnographic approach allows participants to discuss their experience, coming together to make sense of their situation, context, and experiences. This work came out of the need for the participants of this VWG to share lessons learned and begin to develop a conceptual framework to describe collaborative community development.

Participant Information

Three of the VWG members attended a workshop during Summer 2019 where they heard about the benefits of writing/accountability groups. After the workshop, one of those participants coordinated a virtual writing group, inviting the other three members to the current VWG. A summary of VWG participant information is provided in Table 1.

Table 1: VWG Participant Information

	Degrees & Experiences	Institution Type	Time in Position	Roles
Dr. A	B.S., Industry Experience, M.S., Ph.D., Postdoc	Large, Urban, Public, R1, PWI	2 years	TT, 1/2 Teaching, High Research
Dr. B	B.S., M.S., Ed.D. with Research Experience in Engineering	Small, Rural, TCU	1 year	NTT, 5/5 Teaching, Admin, Grant Management
Dr. C	B.S., Industry Experience, Certificate, Ph.D., Postdoc	Large, Urban, Public, R1, HSI	5 years	NTT, 2/2 Teaching, Admin, Research
Dr. D	B.S., M.S., Industry Experience, Ph.D.	Large, Urban, Public, R1, PWI	2 year	NTT, 2/2 Teaching, Research

* PWI (Primarily White Institution), TCU (Tribal College and University), HSI (Hispanic Serving Institution), TT (Tenure Track), NTT (Non Tenure Track)

Data Collection and Analysis

The VWG used a structured process. At the beginning of the semester, each team member completed a pre-reflection (see Appendix A) composed of questions about their reason for joining the group as well as goals, expectations, and apprehensions. After setting rules and adapting the process [14] for running weekly meetings, each member signed up for two slots over the semester to have their writing reviewed. The group would meet four weeks in a row for the first round of review, rotating through a member each session.

During the first round of reviews, each week the VWG met for one hour. The team members took turns to receive feedback on a writing sample (e.g., manuscript, grant proposal, research plans, survey instruments). After each session, members completed a post-session (weekly) reflection (provided in Appendix A) including questions aimed at understanding the process each team member took to provide feedback, their perceptions of the group meeting and feedback process, and how this VWG practice could be beneficial at theirs (and other) institutions.

Thematic analysis of the pre-reflection and first four post-session reflections was conducted. Each team member was asked to read through all other team member's pre-reflections and first four post-session reflections focusing on identifying general themes present in the data. Themes were gathered across team members and anonymous quotes pulled to represent the individual themes. Identified themes included topics related to: (1) group motivation and professional goals, (2) fears and apprehensions of participation, and (3) excitement surrounding participation. Lastly, a summary of the themes and accomplishments from the group were captured and documented.

Resulting Proposed Conceptual Framework - Lone Wolf Approach to Collaborative Community Development

Preliminary results suggest that similarities in pre-semester reflections include shared goals, common apprehensions, and comparable levels of excitement, which are used to foster an environment conducive to a high functioning VWG. After sharing four writing samples, one for each participant, reflecting on each of the feedback sessions, and analyzing the data from those reflections key themes were found centering on community, productivity, and sense of belonging. Here, we proposed a high-level conceptual framework of group development specific to the development of collaborative communities aimed to support research goals within engineering education. Although this particular study focused on engineering education research, we are confident that many aspects can be generalized into the general academic setting regardless of research disciplinary focus area.

Tuckman's 5 Stages of Team Development [1], Figure 1, is very much applicable for teams that are required to work together versus teams that choose to work together. As educators, we commonly see these stages play out in group design projects, especially when it comes to the "storming" stage when students start complaining about their peers and show frustration towards the inability to be productive as a group. Tuckman's model offers a good foundation, yet the authors set out to propose a modified framework that describes the stages that occur when people

“choose” to work together, versus Tuckman’s model which describes the typical process when people are “forced” to work together (e.g., student group projects).

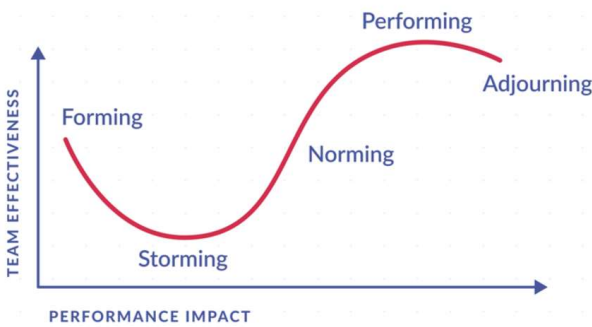


Figure 1: Tuckman's 5 Stages of Team Development

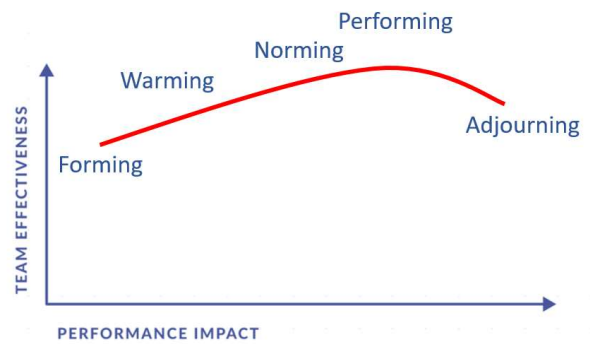


Figure 2: Lone Wolf Approach to Collaborative Community Development

This modified framework, the *Lone Wolf Approach to Collaborative Community Development* (Figure 2), is proposed to explain the phenomenon that occurs when people choose to work together towards a common cause, in particular when they feel isolated or have limited access to a like-minded peer group. In this type of voluntary setting, anecdotal evidence suggests the “storming” aspect does not typically apply; essentially, in a voluntary setting, if you don’t want to be there, then you are free to leave. As a result, the team/group/community development tends to follow the hockey stick effect (e.g., slowly increasing each week, then exponential once the reflections are reviewed), where group members are “warming” up to each other as they get to know one another. Essentially, in a collaborative community, like many other teams, there is a group learning curve. However, reading each other’s reflections can exponentially increase the sense of belonging. The data analysis suggests creativity, critical thinking, and overall performance increases the more people get to know each other (hence, the purpose of “icebreakers” and “show-and-tell” in a traditional learning classroom).

Conclusion

Next Steps and Future Work

The four EER participants will continue with the virtual writing group, part of which includes continuing to write reflections after each weekly session. After participating in the virtual writing group across two semesters (Fall 2019 and Spring 2020), the authors plan to apply autoethnography data analysis techniques to formalize the study into a journal manuscript. Assuming this goes well, the authors will consider developing a “toolkit” to empower new and early career faculty to develop individual and community potential through virtual writing groups.

WIP: Feedback Requested

Given that this paper is a WIP (work-in-progress), the authors are seeking feedback from the community in the following areas.

1. Anecdotally speaking, if you have participated in a peer group, what was the goal/purpose (e.g., feedback on writing, accountability, social) of the group? What benefits did you obtain while participating in the group? What challenges (if any) occurred?
2. From a practical perspective, does the proposed *Lone Wolf Approach to Collaborative Community Development* hold well with your own experiences of voluntarily participating in a purpose-driven peer group?
3. Is there any additional feedback you'd like to share with the authors?
Please share feedback directly with the presenters at the ASEE 2020 conference and/or via email (sent to any of the researchers): Dr. Lisa Bosman (lbosman@purdue.edu), Dr. Erin McCave (ejmccave@central.uh.edu), Dr. Molly Goldstein (mhg3@illinois.edu), and Dr. Kelli Chelberg (mhg3@illinois.edu).

Appendix A: Examples of Reflection Prompts

Pre-Semester Reflection

Please answer the following questions:

1. Why did you want to join this virtual writing group?
2. What do you want to accomplish by being part of this virtual writing group?
3. What are your professional goals for this semester?
4. What are your professional goals for the year?
5. How will being part of this virtual writing group help you to accomplish these goals?
6. What are you most nervous/excited about as this virtual writing group begins to meet?
7. Upon answering the previous questions, is there anything else you would like to add that you believe is important to capture at this point during the project?

Weekly Reflection

As part of this VWG, reflect on the session we had today and comment on how participating in this session has helped/hindered individual participant success outcomes, peer mentoring, accountability, and an overall sense of belonging in academia?

You may want to consider the following questions to guide your response:

- What value did I add and/or gain to/from the group during this session?
- What could I have said but I didn't? Why did I decide to hold back?
- What did I do to prepare for this session? Would I do anything differently for the next session?
- What observations did you notice that suggested the presenter appeared receptive to the feedback?
- What is the most important thing I learned personally from this session?
- How well did the team communicate overall?
- What could your institution do differently to assist in your research efforts?

Post-Semester Reflection

Please answer the following questions:

1. What did you get out of being a part of this virtual writing group?
2. What were you able to accomplish by being part of this virtual writing group?
3. What professional goals for this semester were you able to meet?
4. What professional goals for the year have you been able to meet so far? How have your goals change if you weren't able to meet them?
5. How did being part of this virtual writing group help you to accomplish these goals? Help you refine these goals?
6. Upon answering the previous questions, is there anything else you would like to add that you believe is important to capture at this point during the project?

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