

# Weaving New Threads into the GeoEd Community of Practice

Report on interviews at the 2015 Earth Educators' Rendezvous

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## *Headlines:*

- Ninety-two percent (85/92) of the interviewed attendees at the 2015 Earth Educators Rendezvous said yes, they had met someone at the Rendezvous whom they would like to collaborate with, continue to be in touch with, or work with after the meeting.
- Respondents envision a wide range of different ways in which they wish to continue to interact with their new colleagues. Exchanging ideas and resources around teaching was by far the most frequently mentioned, followed by exchanging ideas and resources around science education research.
- The morning workshops were far and away the most effective component of the Rendezvous for generating new collegial contacts.

## *Introduction*

One of the goals of the Earth Educator's Rendezvous was to broaden and deepen the community of practice of people engaged in improving undergraduate geoscience education and geoscience education research (GER). A **community of practice** is a group of people who share a concern or a passion for something they do, and who learn how to do it better as they interact regularly. Communities of practice have the potential to increase the effectiveness of the participating individuals by sharing insights, experiences, resources and best practices, and by inventing new practices, creating new knowledge, and developing a collective and strategic voice.<sup>1</sup>

A community of practice manifests itself through interactions between individuals, either in groups or one-to-one. Collectively, such interactions can be envisioned as forming an invisible web or network of connections, linking individuals to other individuals. Strengthening a community of practice can happen either by forging new links in the web, or by reinforcing existing links. To gauge the effectiveness of the Earth Educators' Rendezvous in forging new links between participants, I conducted mini-interviews with conference participants, probing whether potential new links had been formed, what the nature of those interactive links might be, and what part of the Rendezvous catalyzed the link-formation.

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<sup>1</sup> Wenger-Trayner, E., & Wenger-Trayner, B. (2015). Communities of practice: A brief introduction. <http://wenger-trayner.com/introduction-to-communities-of-practice/>

## Methods

I interviewed participants on Days 3, 4 and 5 of the week-long Rendezvous (W, Th, and Fr). SERC staff and people who had been at the Rendezvous for less than one day were excluded, but non-SERC employees who had played a role in planning or leading the Rendezvous were included. I interviewed at the following venues: 3 morning workshops, three plenary sessions, two afternoon mini-workshops, 1 poster session, 1 oral session, the food court during lunch, the poster area during morning setup time, the hallways outside of sessions and workshops, and the courtyard of the dorm.

Ninety-four interviews were conducted, of which 2 were found to be ineligible. The 92 useable interviews comprise 31% of the conference registrants (final attendance estimated at 295, Krista Herbstrith, email communication, 27aug2015).

Three three questions asked were:

- (1) Here at the Rendezvous, have you met anyone that you would like to collaborate with, continue to be in touch with, or work with after the meeting? [If necessary, I clarified that these should be new contacts, people they hadn't known or met prior to the Rendezvous. I did not ask respondents to name the person or people they planned to stay in contact with.]
- (2) What would be the nature of the ongoing interactions or work that you have in mind?
- (3) Where at the Rendezvous did you meet them?

### Question #1: "Have you met anyone....?"

Responses to question 1 were coded into four categories: No, Not sure, Yes, and Yes+, as shown in Table X. The unusual coding category of "Yes+" emerged from the data, and was reserved for people who offered enthusiastically affirmative responses in both tone of voice and words, using phrases such as "Oh, my gosh, yes!"

Table 1: Coding for Question 1

<i>Code</i>	<i>Examples</i>	<i># of responses</i>
Yes +	"Most definitely." "Oh, my gosh, yes." "Yes, lots, many." "Absolutely!" "Oh, yeah, definitely." "Plenty of people."	16
Yes	"Yes." "Yeah." "Yes, several." "Yes, [name or names]"	69
Not sure	"Hard to answer." "I think so." "Tough question."	4
No	"Nothing immediate." "Not yet."	3

The responses were dominated by Yes and Yes+ responses, which together comprise 92% (85/92) of the responses (Figure 1).

## Q#1: "Have you met anyone...?"

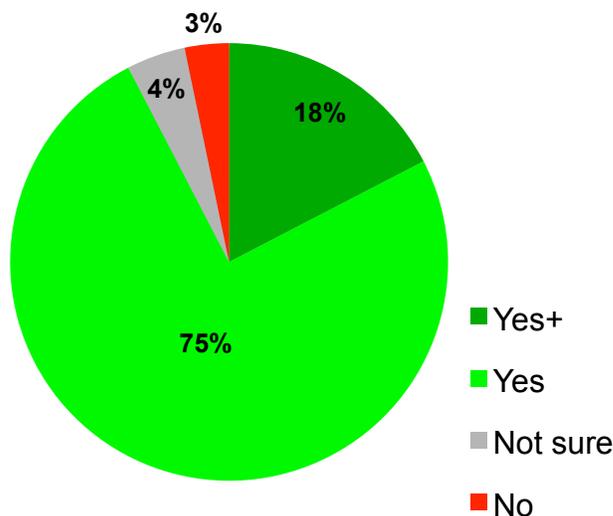


Figure 1: Responses to question #1: "Here at the Rendezvous, have you met anyone that you would like to collaborate with, continue to be in touch with, or work with after the meeting?" The overwhelming majority of respondents replied affirmatively.

The few people who responded hesitantly or negatively tended to provide some extenuating circumstances, for example: "Not yet; I'm not a person who meets easily"; "We just got funded for a collaborative project; all 4 PI's are here and we've been focused on working with each other"; "I'm in biology by background." Only one person indicated that the Rendezvous was ineffective for meeting people: "I think the Rendezvous is set up to work on your projects, not to meet people....unlikely that I will make a contact."

### ***Question #2: "What kind of ongoing interaction....?"***

Only the 85 respondents who answered affirmatively to question 1 were included in the pool of respondents for question #2.

Sharing ideas and/or resources around teaching was far and away most common form of interaction, mentioned by 37 respondents (44%) (figure 2). This is an easy and low-stakes form of follow up, and is familiar to the participants who have attended previous SERC or NAGT workshops.

Sharing ideas and/or resources around education research was the second most frequently mentioned type of interaction, mentioned by 18 respondents (21%). This suggests that the meeting organizers succeeded in crafting a program that was attractive and effective for geoscience education researchers (GER's) as well as geoscience educators. The National Research Council (2011) report on Discipline-based Education Research (DBER)<sup>2</sup> emphasizes the difficulty of bringing research into practice in science education, and thus the importance of

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<sup>2</sup> Singer, S. A., Nielsen, N. R., & Schweingruber, H. A. (2012). *Discipline-based education research*. Washington, D.C.: National Academy Press.

having DBER practitioners on close terms with scholars and educators in the discipline. This data is promising in that regard.

### Q#2: "What kind of ongoing interaction...?"

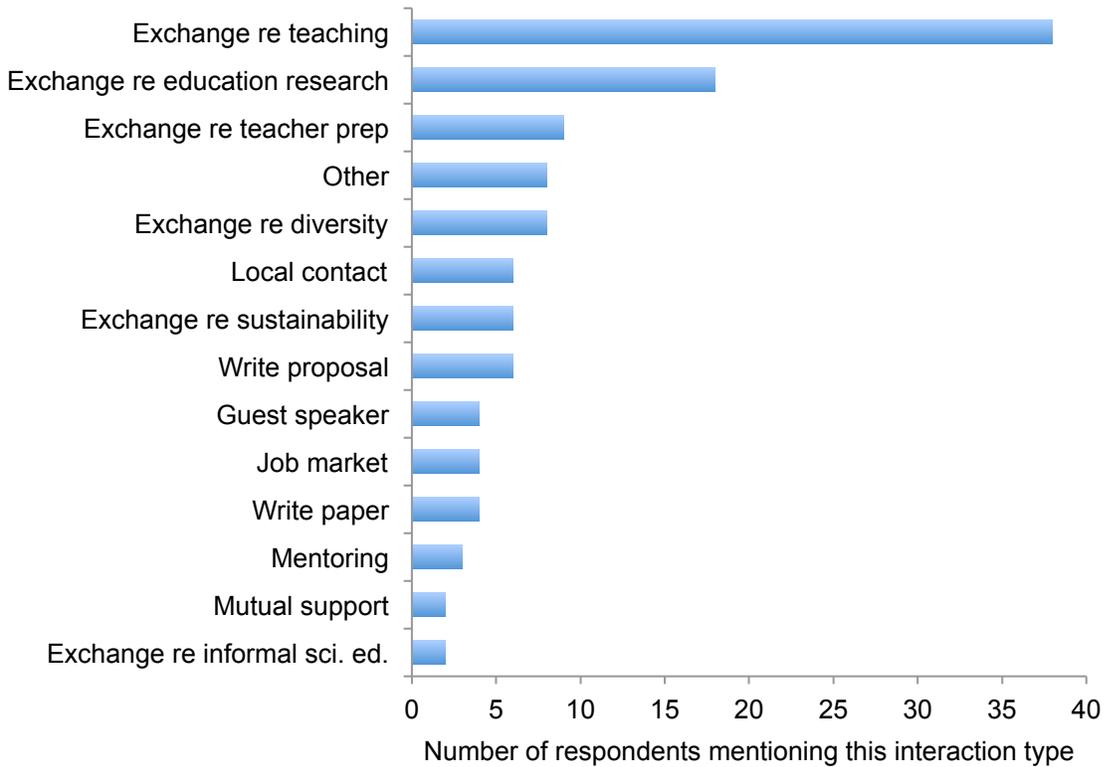
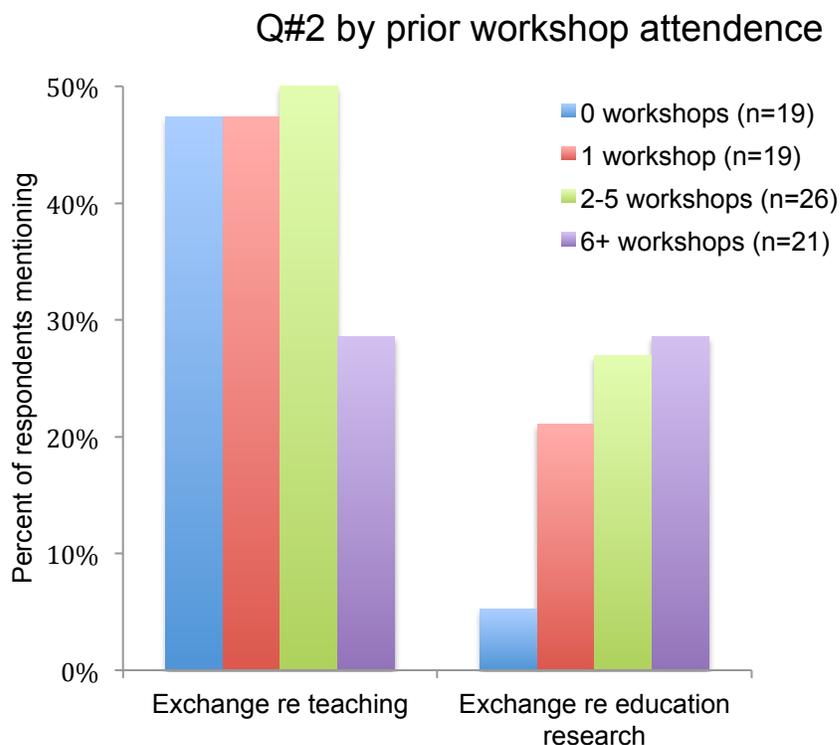


Figure 2: Responses to Question #2: "What would be the nature of the ongoing interactions or work that you have in mind?" Graph shows number of attendees mentioning each type of envisioned interaction; total exceeds 85 because many respondents cited more than one desired type of interaction.

InTeGrate distinguishes between resources and activities that impact education at the level of individual courses/faculty/classrooms and those that can impact an entire department/program/institution. Of types of interaction that have the potential to impact entire departments or programs, the most commonly mentioned was exchanging ideas and/or resources around diversity/broadening access, mentioned by 8 respondents.

Although most of the envisioned interactions were at the level of staying in contact about shared interests or challenges, ten respondents mentioned more ambitious actions: six plan to write a proposal together, and four plan to write a paper together. "Other" includes some additional collaborative actions, like become a new study site for an ongoing study.

For the two most commonly mentioned kinds of interactions--exchange ideas/resources around teaching and around education research--figure 3 shows a further breakdown by the extent of the respondents' prior participation in SERC and/or NAGT workshops.



*Figure 3:* Colors indicate how many previous SERC or NAGT workshops a respondent had attended. Bar height indicates what percentage of respondents in that prior-workshop category mentioned each of the indicated interaction types.

Exchanging ideas and/or resources about teaching was mentioned by close to 50% of the respondents who had been to 0, 1, or 2-5 previous workshops (figure 3, left side). In contrast, individuals who were already deeply enmeshed (6+ prior workshops) in the workshop-attending community were much less likely to mention exchanging ideas around teaching (mentioned by <30%). Perhaps their teaching is already strong and stable, or they already have a robust network of colleagues with whom to share teaching ideas. These seasoned workshop attenders were likely (24%) to give idiosyncratic responses that were classified in the “other” category; upon closer inspection, many of these unique responses pertain to specific leadership responsibilities that these individuals have within geo-ed or GER.

Exchange ideas and/or resources around geoscience education research also shows a distinctive pattern (figure 3, right side). Newcomers to the geo-ed workshop circuit are by far the least likely to mention this form of post-conference interaction (mentioned by 5%). This type of interaction increases with increasing prior workshop involvement, reaching a high of 29% among respondents who have attended 6 or more prior workshops.

**Question #3: “Where did you meet them...?”**

As with question 2, only the 85 respondents who had answered affirmatively to question #1 were included in the pool analyzed for question 3. Responses to Question 3 were coded into five categories that were embodied in the Rendezvous schedule (morning workshop, poster session, afternoon mini-workshop, oral session, plenary session), plus 5 categories that emerged from the data (hallways, meals, personal introduction, review camp, dorm roommate). The “hallways” code included variants such as “standing around,” and “informal times.” Figure 4 shows the responses to question 3, tallied according to the number of respondents who indicated each type of venue or setting.

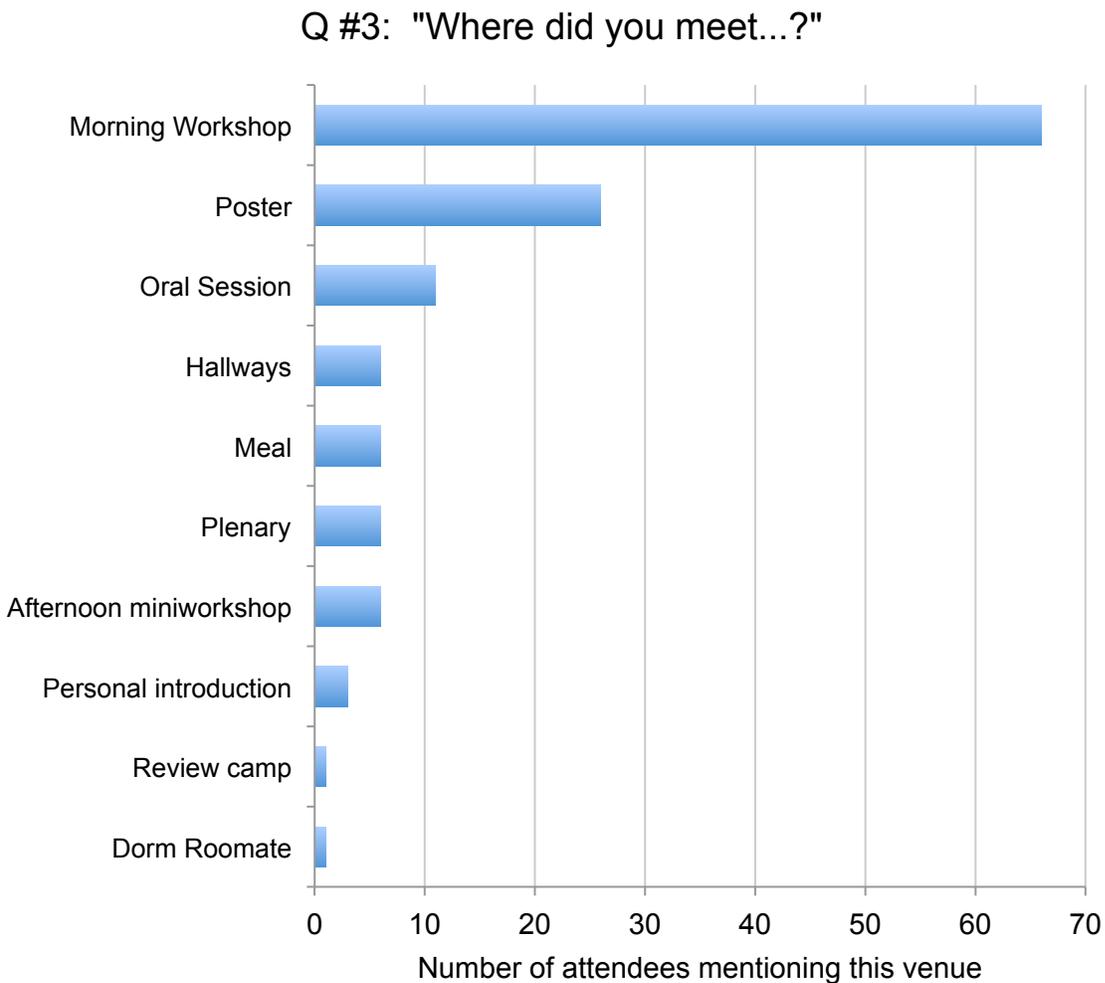


Figure 4: Responses to Question #3: “Where at the Rendezvous did you meet them [the contacts mentioned in response to Question #1]?” Graph shows number of attendees mentioning each venue; total exceeds 85 because many respondents cited more than one venue.

The morning workshops were far and away the most frequently cited venue for the event of making a contact with whom the respondent wished to remain in touch, collaborate or work with after the meeting. Seventy-seven percent of the respondents mentioned a morning workshop (66/85), as opposed to 31% for poster sessions (26/85), 13% for oral sessions (11/65), and less than 10% for each of the other categories.

In fact, figure 4 underrepresents how thoroughly the morning workshops dominated the responses to Question 3. Most respondents who cited a morning workshop spontaneously identified the workshop by either title or leader, and the remaining respondents were able to so specify the morning workshop when asked. This was not the case for poster sessions, oral sessions or mini-workshops, which tended to be mentioned in vaguer answers, often not identifiable by date, session title or leader name. Fifteen respondents mentioned a 3-day workshop PLUS a 2-day workshop. All told, there were 56 mentions of a 3-day workshop and 25 mentions of a 2-day workshop.<sup>3</sup> The most frequently mentioned 3-day workshops were Synthesizing Geoscience Education Research, Developing your Cultural Competency, and Implementing the Next Generation Science Standards, and the most frequently mentioned 2-day workshop was Strengthening Sustainability Learning; each of these was mentioned by more than ten respondents.

The potential contact-making venues absorbed different amounts programming time and afforded different amounts of time for contacts to be made. Table 2 explores this effect by

Table 2: Contacts made per programming investment

	<i>Hours in Rendezvous schedule *</i>	<i># of new contacts made</i>	<i>New contacts/ programming hour</i>
3-day morning workshop	9	56	6.2
2-day morning workshop	6	25	4.2
Poster session	8	26	3.3
Plenary session	5	6	1.2
Oral session	13.75	11	0.8
Afternoon mini-workshop	13.75	6	0.4

*Notes:* 3-day morning workshops were M-T-W, 3 hr/d. 2-day morning workshops were Th-F, 3 hr/d. Poster sessions were M-W-Th-F, 2hr/d, over lunch. Plenary sessions were 1 hour apiece, on M afternoon, T afternoon, T evening, W afternoon, Th afternoon; a closing plenary was held on F afternoon, but interviewing stopped before that event, so only 5 plenary hours are included in the table. Oral sessions and mini-workshops were both held daily for 2 h 45m per day.

<sup>3</sup> The morning workshop data are a bit confusing because they are reported by participant, by workshop and by workshop type (2-day versus 3-day). By participant, 66 respondents (out of 85) mentioned a morning workshop in their response to question #3, and this is what is compared to the other venues in figure 4. Forty-one respondents mentioned only a M-T-W workshop. Ten mentioned only a Th-Fr workshop. Fifteen mentioned both a M-T-W and a Th-F workshop. Thus M-T-W workshops received a total of 56 mentions (41 +15) and Th-Fr workshops received a total of 25 mentions (10+15); this is what is compared to the other venues in table 2. The level of detail in the responses did not allow this kind of breakdown for the other Question 3 coding categories.

showing the time allocated for each of the formally-scheduled venues in the Rendezvous schedule and the number of contacts made per programming hour. The three-day (M-T-W) and 2-day (Th-F) morning workshops behaved differently in this regard, and so are broken out separately in Table 2.

In this analysis, the morning workshops again dominate. The 3-day M-T-W workshops yielded a remarkable 6.2 new contacts per hour for the 9 hours of Rendezvous time allocated for this purpose. With respect to workshops, it appears that longer was better, in a non-linear fashion: 2.75-hour mini-workshops yielded 0.4 contacts per hour; 6-hour Th-Fr workshops yielded 4.2 contacts per hour; and 9-hour M-T-W workshops yielded 6.2 contacts per hour.

Poster sessions (3.3 contacts per hour) were quite a bit more effective than contributed oral sessions (0.8 contact per hour) at generating new contacts. This contrast is especially notable because the poster sessions had to compete with the lunch break.

In considering these data, it is important to keep in mind that Rendezvous programming had many other purposes other than just weaving new threads into the community of practice. Although these findings may be of use in planning future Rendezvous, other factors need to be taken into account. For example, although oral sessions were not a particularly good venue for making new contacts at Rendezvous 2015, some participants may not have been able to obtain funds for travel and registration had they not been giving a contributed presentation, and oral sessions may succeed in transferring information in a form that does not require post-meeting follow-up.

### ***Take home thoughts:***

The Earth Educators' Rendezvous succeeded in creating potential new collegial connections for the vast majority of participants interviewed--although, of course, not all of those potentials will be followed up or endure. Exchanging ideas and resources around common interests and challenges in teaching seems to be the strongest immediate value in the eyes of newcomers to the community. Extended workshops (9 hours over 3 days) were the most effective format for creating new links.