

The Importance of Conferences and Networking in PhD and Postdoctoral Training

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Conferences play an important role in enabling trainees to develop and apply competencies in science, in communication, and in networking during biomedical PhD and postdoctoral training. This article offers guidelines for trainees on how to use conferences to initiate, sustain, and strengthen connections, including in virtual conference formats which could become the norm in the future. Additionally, it provides tips for expanding professional networks via broad mechanisms such as informational interviews. Recommendations in this manuscript are applicable to trainees pursuing diverse career paths in different STEM fields including education, scientific research, policy, advocacy, consulting, and communication. © 2020 Wiley Periodicals LLC.

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INTRODUCTION

Communication and networking are pivotal competencies of Science, Technology, Engineering, and Math (STEM), PhD (Committee on Revitalizing Graduate STEM Education, for the 21st Century et al., 2018; Verderame, Freedman, Kozlowski, & McCormack, 2018), and postdoctoral training (National Postdoctoral Association's Core Competencies List). STEM trainees as well as established professionals rely on oral and written communication to reach a wide range of audiences. Similarly, the STEM work force relies on networking to kickstart, negotiate, guide, and advance their careers. Both these competencies are evident and essential in professionals and leaders in any scientific field (Sinche et al., 2017). Successful communication and networking enable leaders to be visible in the community, obtain funding, find collaborators, and develop key mentoring relationships (Antes & DuBois, 2018). Beyond individual advancement, effective science communica-

tion and networking also positively impact educational policies and health reform, thereby broadly benefiting society (Brownell, Price, & Steinman, 2013).

Conferences provide members of the STEM workforce with tangible opportunities to advance their careers beyond their institutional setting. In academic institutions, STEM PhD students and postdoctoral scholars (referred to as trainees), routinely present research with their labmates via lab meetings, and with colleagues via departmental seminars and annual retreats. For PhD students, thesis committee meetings also offer a chance to communicate new findings and critically analyze them with a group of experts. It is, however, essential for trainees to also reach other professionals with influence beyond their immediate academic circles. Conferences make it possible for trainees to formally communicate individual research accomplishments as well as individual professional traits to senior leaders, via platform

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Competencies gained and/or
applied at conferences

1. Communication

- a. Platform talks
- b. Poster sessions
- c. Elevator pitches

2. Networking & interpersonal

- a. New collaborations
- b. Career connections
- c. New mentors

**3. Disciplinary & broad scientific
knowledge**

Figure 1 Core competencies defined for PhD and postdoctoral training that can be gained and/or applied by attending conferences and similar programs.

talks or poster presentations (Fig. 1). This communication is critical for leaders to be able to recognize trainees' knowledge and experiences, and to help advance trainees within and beyond their scientific disciplines. Trainees can also take advantage of informal mechanisms to communicate and network, such as sharing brief elevator pitches at refreshment tables or social events during conferences (Fig. 1).

There are two main types of conferences: scientific or technical, and non-technical. Scientific conferences range from relatively small but global meetings that are highly specialized to a subdiscipline (e.g., Gordon Conferences, Keystone Conferences), to regional mid-sized meetings usually still focused on specific disciplines or systems (e.g., Mid Atlantic Yeast Meeting, Great Lakes GPCR meeting, Bay Area Aging Meeting), and to very large national meetings with 10,000-15,000 attendees hosted by major scientific societies focused on a major discipline [e.g., American Society for Microbiology (ASM), American Society for Cell Biology (ASCB), Genetics Society of America (GSA), or Experimental Biology (EB)]. Non-technical conferences include professional conferences themed around specific topics such as pedagogy, education research, science policy, science communication, or research development, and those targeted at inclusivity and equity in the sciences, such as Annual Biomedical Research Conference for Minority Students (ABRCMS) and Society

for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) annual conferences. Irrespective of the type, all conferences offer many avenues to practice communication and build networks, and are critical for professional growth.

The goals of this review are to convey the importance of attending multiple conferences and of networking, and to provide guidelines to make the most of your conference attendance and to grow your professional network. I will share best practices for:

- a. Preparing and planning to attend conferences
- b. Networking inside and outside conferences
- c. Sustaining and growing networks
- d. Building community and networks at virtual conferences.

**PROPER PREPARATION IS
IMPORTANT TO GET THE MOST
OUT OF A CONFERENCE**

Conferences offer many short- and long-term benefits (Fig. 2). Conferences give you an avenue to both share your latest findings with the immediate research community and access latest research. Sharing research before it is formally written up for publication, via formal or informal interactions, has many advantages. It allows you to formulate a narrative and test it on an expert audience and potential reviewers, with the benefit of addressing concerns or deficiencies in the narrative if any are identified. It



Figure 2 A schematic summary of the short- and long-term advantages that can be gained by attending conferences.

also allows you as a trainee to showcase your work early in front of influential professionals, some of whom might play formal or informal mentoring roles in your future careers. Conferences also enable you as an attendee to hear latest research findings from other laboratories across the globe, often well before they are published. The overall research advantages are self-evident, as this can inform your own research and often initiate formal collaborations.

Conferences, however, also often involve a serious commitment in terms of time, effort, and resources, and proper planning and preparation are essential to maximize the benefits that you get from participating in a conference. The type of preparation might vary slightly depending on the type of conference that the trainee is targeting, but the general principles remain the same. Intentional planning and active effort are required from individual attendees. Planning and preparation involve identifying ideal conferences, planning the logistics of attendance, writing and submitting abstract(s), preparing your talk and/or poster, and reviewing the attendee list and making early contacts and formal arrangements with other professionals.

Steps for preparing to attend conferences

a. Make a list of conferences in your discipline or subdiscipline.

Do this very early in your training. This list can be reused or edited in the future. Note

that your lab might have a list of conferences they routinely attend.

b. Visit past conference websites and make note of topics covered.

Many conferences now allow sophisticated searching of content. Look for alignment with your research topic and career interests. Also skim through attendee lists.

c. Pick 1-2 conferences that you want to attend, based on your prioritized interest and budget.

Note that your department or the university may have funding for conference travel. For example, at the University of Michigan, the Office of Graduate and Postdoctoral Studies at the Medical School and the Rackham Graduate School provide funding for conference travel.

d. For the 1-2 identified conferences, create calendar reminders for relevant deadlines—e.g., abstract submission, registration and accommodation.

e. Work with your advisor to write a good abstract (Andrade, 2011).

Note that most platform talks are reviewed by the conference committee and selected based on competitive criteria. Poster abstracts in the biomedical field, on the other hand, may not be reviewed prior to acceptance, but may be competitively judged at the conference.

f. Plan and practice both your presentation and elevator pitch, tailored to the audience and mode of delivery—platform talk (More, Sjolander, & Chang, 2017; Fleming, 2018) or poster presentation (Gundogan, Koshy, Kurar, & Whitehurst, 2016; (Torigoe, 2018).

g. Share enthusiastically with the scientific community that you are attending the conference. When sharing, include the title of your accepted abstract, poster number, and time of presentation, if applicable.

Using Twitter with the conference hashtag is a great way of letting broader audience know that you are attending.

Once you are well prepared, focus on presenting your work effectively, building new connections, and strengthening existing networks, according to the steps in the next section.

NETWORKING IS AN IMPORTANT SKILL

Networking is the cultivation of productive relationships when meeting new people, either intentionally or by chance. It is a two-way process that requires both parties to share relevant information about each other and to recognize that continued interactions have the potential to be mutually beneficial. New relationships built by this process can be enhanced or strengthened in the future, depending on the purpose of professional growth.

Networking has powerful positive consequences that can be attributed to the human nature of connecting with others. Talking to someone in person (or even via direct online videoconferencing) gives a personal and intuitive picture of the individual, far beyond what e-mails or LinkedIn profiles can provide. These personal interactions also build credibility and authenticity. Thus, the person who could influence your career decisions is able to make an informed, personal, and confident recommendation or an employment suggestion, based on what they know about you as a real person. A 2016 LinkedIn Survey, not surprisingly, indicated that 85% of all job openings are filled because of networking connections (Adler, 2016).

The act of connecting with new people does not have to be awkward, insincere, or selfish. Introverts are likely to find initiating conversations and finding common ground more awkward than extroverts. Introverts and extroverts, however, have innate qualities of being good listeners and good speakers,

respectively, which contribute to networking effectiveness. With intent, preparation, and practice, both personalities can tailor their networking approaches to match their comfort level. Therefore, although experiences and initial outcomes can be different for people with different personalities, it is important to emphasize that networking is a critical skill for everyone to develop. Networking has also often been viewed, especially in some academic circles, as being disingenuous in intent or done simply to gain favors. Genuine networking has neither of these attributes. Rather, it needs to be based on trust, humility, and reciprocity, which are key enablers of strong network connections.

Although networks can be built using many different methods and spaces, conferences offer easy venues and opportunities to build human connections (Fig. 3). For example, your presentation or poster is likely to naturally attract scientists in the field whose research is related to yours, or whose research could be advanced by your knowledge or expertise. These scientists could serve on the review panel for your manuscript or grant submission, be on future search committees where hiring decisions are made, or be on a study section where your future grant proposals are discussed. It is, therefore, beneficial to actively pursue interactions. Senior, more influential scientists are often appreciative when trainees proactively invite them to attend their talk or visit their poster. This creates excitement and a subtle commitment to further engage from otherwise busy professionals.

The chance to interact and hold a scientific discourse with leaders in your field, if taken advantage of, can give you an inside track to a future prospect, or even create customized or as yet unadvertised positions for you to apply to their lab for a postdoctoral position, or to their university for a faculty position. Networking at a conference can give you a sneak-peek into other job openings, guide you on alignment with upcoming funding opportunities, and help establish new collaborations—all ways to start building your niche.

Informational interviews offer another possibility to rapidly expand your relevant professional network at conferences (see Key References and Internet Resources on informational interviews). Informational interviews help you gather data or lived experiences from an expert on topic areas, which can be used to guide your future professional decisions. Much like with scientific data, gathering information from as

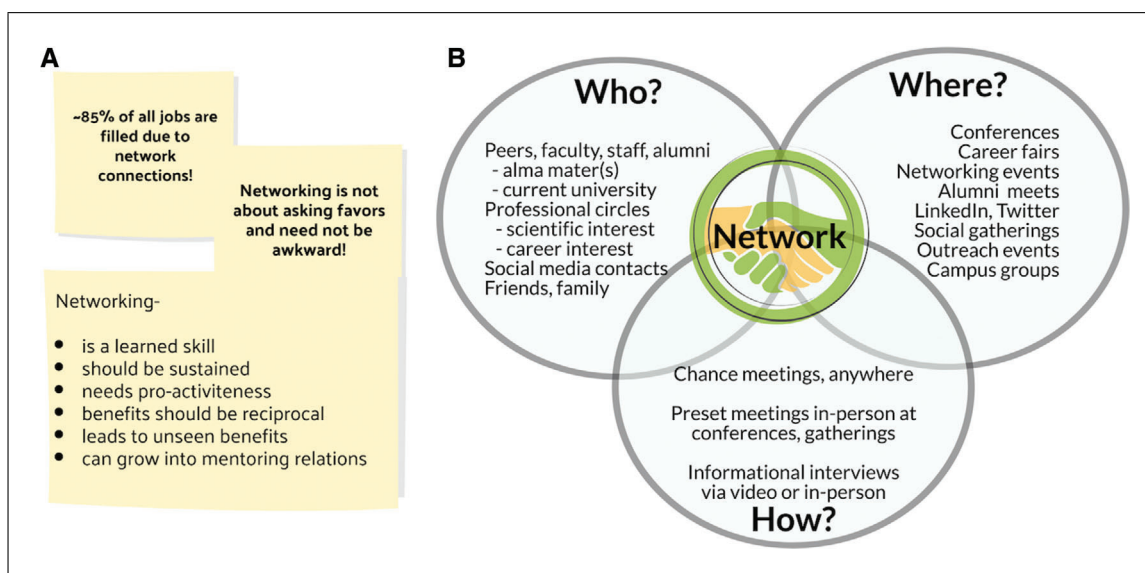


Figure 3 (A) A schematic that lists the many characteristics of networking. (B) Basic layout and details of how, where, and with whom networking can happen.

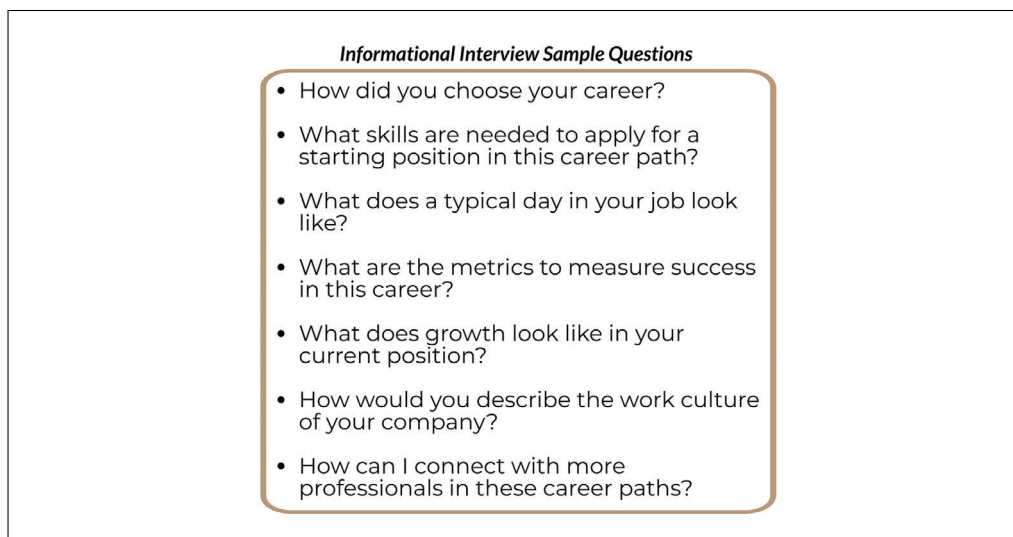


Figure 4 Sample questions for trainees conducting informational interviews with new connections.

wide a network as possible helps you make informed choices based on recurring trends. It is important to realize that informational interviews are not job interviews, or opportunities to ask for jobs, and should not be treated as such. Rather, the underlying purpose of these interviews is to start making connections with professionals in the field and collect as much relevant information as possible, efficiently, in a short time span. Because the focus is on efficiency, decide on your objectives and prepare conversation topics well before you head into the interactions. For example, discussion topics may include learning about new career fields as well as the skills required and metrics of success, about new research tools or methodologies, or about actualities

on the work culture of a potential future lab or an employer. See Figure 4 for sample questions.

Steps to organize your conference networking meetings

a. Make an itemized list of your short and long-term professional goals.

A quiz assessing career interests, skills, and values such as myIDP enables goal setting (see Internet Resource).

b. Browse through the abstract book and conference website to get an attendee list.

c. Contact the relevant attendees, via a purposeful and short e-mail (see Key Reference

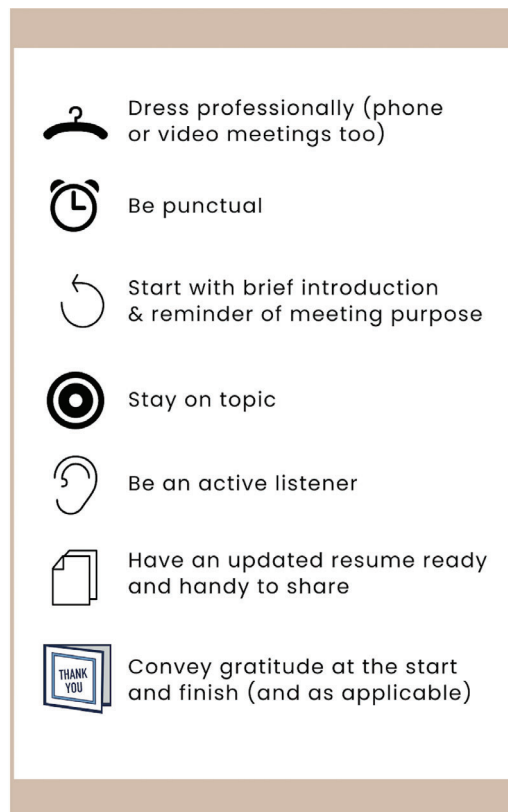


Figure 5 Tips for professional presence in a networking meeting.

on e-mail networking) with whom you want to meet 1:1.

The list can include can be future postdoc advisors, collaborators, mentors.

d. Create a set of questions for the person who you asked to meet.

These can be created via the guiding principles of informational interviews discussed later in this article.

e. Update your CV or resume to have it handy during the conference.

f. Write and practice short and long elevator pitches (see Key References on elevator pitches).

g. Have a professional presence in a goal-driven networking meeting (Fig. 5).

SUSTAINING AND GROWING NETWORKS ARE CRITICAL FOR LONG-TERM OUTCOMES

Relationships are often easier to initiate than to sustain, because sustaining and growing a relationship takes dedicated time and intent for many people. For the connection to grow, an engagement from both parties is

needed. Your goal is to communicate that you value the relationship. Therefore, it is important to follow up immediately and periodically thereafter. In following up with your new connection, convey that your engagement with them was productive and that you would appreciate the chance to continue engaging with them. Another key determinant for sustained relationships is repeated in-person interactions. Such repeat engagements are more effective in settings that enable open-ended conversations. The optimal conditions for such conversations are social gatherings or smaller-sized conferences such as Gordon Conferences. Open conversations are powerful in deciphering behavioral traits and getting to know people via stories and anecdotes. These frequent interactions often emerge as long-term and mutually beneficial connections.

Best practices to sustain your network by prompt and actionable follow up

- a. Follow up with a thank you e-mail within 2 days.
 - i. Thank them for their time.
 - ii. Talk about next steps discussed (short- and long-term).

- iii. Indicate the next time you may reach out (e.g., in 2- or 6-months).
- b. Follow up (per time-stamp above, e.g., after 2- or 6-months) and/or provide status update: a new paper or funding success, activity in the job market, a time-bound new question, or a simple thank you for a lead that came from their connection.
- c. Follow up if you are able to reciprocate with any help or resources you can provide.
- d. If they use social media, connect with them on LinkedIn with a short personal note and follow and engage them on Twitter.

BUILDING NETWORKS AT VIRTUAL CONFERENCES IS THE PRESENT AND THE FUTURE

Recently, most academic and other engagements have gone remote via video conferencing apps. Online conferences can be hard and unfamiliar to navigate because the familiar in-person connections made during poster sessions, at breakfast and lunch tables, and during coffee breaks are no longer available. Moreover, it is impossible to run into someone in the hotel lobby or registration booth. Therefore, the mechanisms and planning for online conferences are different than for in-person conferences. Video conferencing software tools as well as app-based platforms are being used for daily meetings and for conferences. App-based platforms can be helpful to initiate new connections and ask the organizers questions. This is an emerging critical topic of discussion and innovation in academic and non-academic circles, and I anticipate that more resources will become available in the coming months.

Best practices for engaging in virtual conferences (refer to Key References for virtual conferences)

- a. Keep your schedule free as though you are attending an in-person meeting and create out-of-office auto replies from your e-mail to avoid distractions.
- b. During the conference, keep your video on as much as possible, especially when asking questions or engaging in discussions.
- c. If you are a primary caregiver of young kids or other relatives or have pets at home, interruptions can sometimes be unavoidable, so turn video off as and when needed.
- d. Use the chat function to comment or discuss the talk with colleagues. Use chat to add signal and not noise.
- e. Always be courteous and professional in your communication.

f. If you see folks you want to engage, send private chat messages to them either via the conference app or the Zoom chat on how to follow up. Do not wait for a later time to e-mail them.

g. During 1 on 1 Zoom meetings, hide self-view to better engage and to provide a more real-life experience.

If you are presenting in an online conference (refer to key reference on virtual presentation):

1. Check lighting, camera, sound, and slide deck.
2. Keep a neutral background.
3. Have water and/or a hot beverage on hand during the talk.

CONCLUSION

In conclusion, conferences offer highly valuable opportunities for building competencies in communication and networking. Proper preparation and intentional behavior will allow trainees to develop strong and meaningful networks that can drive their career and professional success. These networks need tender care for initiation and growth. Being kind, respectful, and humble while being confident is a balance that brings strength and power to the relationship. These relationships grow even stronger when they are reciprocal. Finally, expanding your network by introducing your connections to others allows networks to develop nodes and branches, and for people in all capacities to pay it forward!

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AUTHOR CONTRIBUTIONS

Shoba Subramanian: Conceptualization; visualization; writing-original draft; writing-review & editing.

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Presenting in virtual meetings

INTERNET RESOURCES

<https://www.nationalpostdoc.org/page/SixCoreComps>

National postdoctoral association core competencies

<https://ogps.med.umich.edu/wp-content/uploads/2018/04/Informational-Interview-Quick-Guide-2018.pdf>

Informational interview quick guide

<https://ogps.med.umich.edu/wp-content/uploads/2017/10/Elevator-Pitch-Quick-Guide-and-Worksheet-2018.pdf>

Elevator pitch quick guide

<http://myidp.sciencecareers.org>

myIDP—Individual Development Plan