



CHAPTER 33

Human spectrograms

Description

I've included human spectrograms in the *Openers* section of this compendium because they provide an ideal way for participants to learn about each other early in an event. However, as you'll see, they could have been included equally well in the *Middles* or *Participatory Voting* sections of this book.

Human spectrograms—also called *human graphs*, *continuum*, or *body voting*—are one of the most versatile participative techniques. They provide an information-rich public tableau of opinions or personal information by asking participants to move to a place in the room that corresponds to their responses to questions with a range of possible answers. Human spectrograms allow session presenters, the group, and participants to directly experience the range and distribution of responses, and then explore individual responses or group outcomes as appropriate.

They can be used to:

- help attendees learn about each other;
- uncover differences and similarities;
- share the distribution of a participant attribute; for example, years of experience in a profession;
- explore opinions or display the degree of consensus on a topic;
- rate a variety of alternative options;
- create teams to discuss opposing views on a topic;
- build homogeneous (of the same kind) and heterogeneous (diverse) groups for further work; and

- allow attendees to quickly discover geographic neighbors; for example, people who live, work, or were born nearby.

Spectrograms can be *one-dimensional* or *two-dimensional*. They can also be used to display changes in participants' information or opinions over time—I call these *state-change* human spectrograms.

If all these reasons weren't enough, spectrograms are a lot of fun for participants, functioning as open-ended icebreakers during a session.

Finally, spectrograms get people moving, thinking, and interacting—features that improve learning and retention. When carefully scheduled as breaks between static activities, they offer an excellent way to maintain a high level of interest, involvement, and learning.

When?

Use human spectrograms when you want to:

- have participants learn more about each other regarding particular topics or issues.
- gain information about group and individual attributes or opinions that is more complicated than that available via a yes/no vote, for example, number of years in business, or the strength of agreement/disagreement about an issue.
- obtain geographical data and share it effectively among group members.
- create homogeneous or heterogeneous small groups.
- divide a group into teams with opposite viewpoints for a subsequent debate or discussion.
- visualize how participant information changes over time.

As I've explained earlier in this book, participatory techniques such as human spectrograms are best used as natural discovery and sharing exercises that provide a break from presentation process every 10 to 20 minutes to keep participant energy high and optimize learning. So, if it makes sense to use spectrograms in a session, rather than using the technique just once, you'll probably want to create a series of appropriate questions to be used at different points during the session. When designing your session, spend some time thinking about the order of questions you'll use. Normally, you'll move from general or warm-up questions toward more specific issues as the session continues.

Resources

As usual, if the group is large the facilitator should have a microphone. If you want to be able to interview people about their positions in a spectrogram, an additional wireless microphone can be helpful.

One-dimensional human spectrogram requirements

To run a one-dimensional human spectrogram you'll need enough completely clear room space to arrange participants into a line of bodies that reflect responses to each question asked. I call this area

the *spectrogram corridor*. The line will be formed between the two walls of the room that are farthest apart (the long dimension of the room). Make the clear area at least 10 feet wide, and large enough to provide at least 10 square feet per person. Check that people can easily make their way to the open space in the room from wherever they may have been seated or standing, and that no obstacles, such as projectors, audio equipment, or podiums will obstruct the space during the process.

Some people recommend that one-dimensional spectrograms use a line of tape on the floor to show where people should stand. I don't find it necessary, but if you want to use tape, select a high quality masking tape that can easily be removed from the floor.

Two-dimensional human spectrogram requirements

Before running a two-dimensional human spectrogram, decide on the kind of geographical location you want participants to share. Usually this will be where they live or work, though you could also use where they were born, went to college, or any other useful information.

Because many participants may be unfamiliar with the local geography of the conference venue, or may simply be geographically challenged (I include myself in this category), it's helpful—though not essential—to project a map of the geographical region that will include a majority of the attendees' locations, and this map should be prepared in advance. Don't worry about including the far-off locations of a few participants; if you do, the map won't be of much use to the majority.

Search for the conference venue on a mapping service and adjust the map scale to produce an appropriate map for displaying the majority of your participants' origins. (For an optimum map, the venue may not be in the center of the resulting image.) I like to use Google My Maps: The video listed in the notes shows how to make just the custom map you want.¹²⁷

Leave the search venue marker on the map so people can easily see their current location, and take a screen shot of the map. You can then copy the resulting image into a PowerPoint or Keynote presentation and project the image onto a screen in the room.

Finally, as with the one-dimensional spectrogram, you'll need sufficient completely clear space in the room, the *spectrogram corridor*. Allow at least 10 square feet per person, with the space's shape roughly reflecting the relative dimensions of any map you've prepared. Note that two-dimensional spectrograms generally require a wider space than one-dimensional spectrograms.

State-change human spectrogram requirements

State-change human spectrograms have no additional requirements than those described above for one- or two-dimensional human spectrograms.

How? One-dimensional human spectrograms

If time is short, you can and should introduce one-dimensional human spectrograms simply by running them on the statistic, opinion, or sentiment you wish to display. When you have time,

however, I recommend you run an initial spectrogram that highlights the total amount of experience among participants.

Demonstrating the years of experience available in the room

A spectrogram of the number of years of available experience in a conference theme or session topic provides a powerful demonstration of the collective resources of the group compared to those of one or a few experts.

Say something like this:

“I’m going to invite you to form what’s called a human spectrogram. You’re going to line up in order by the number of years’ experience you have in [conference or session topic]. So, if you’ve just entered the [industry/field], you should go to that wall [indicate a wall at one end of the human spectrogram corridor]. If you’ve been in the [industry/field] for many years, the sky’s the limit; you should be over there [point to the other wall of the spectrogram corridor]. You’ll need to talk to each other to figure out where you should be standing! Find your places!”

While people move into position, estimate the number of participants in the room.

Once people have stopped moving, ask a few of those at the high experience end of the spectrogram to say how many years’ experience they have and repeat their answers for the whole group. Then, walk to the middle of the line (i.e., the point where there are approximately equal numbers of participants on either side of you) and ask the people there how many years’ experience they have. Use their answers to calculate the total number of years by saying something like:

“So the median number of years of experience here is ten [replace by actual median] years. Since there are 80 [replace by actual estimate of people in the group] people here, we have about 800 [10 × 80; replace by actual multiplied figure] years of experience in [industry/field] present in this room. This is far more experience than any one or two people could have.”

If appropriate, you may want to add:

“We’re going to tap that experience right now to your benefit.”

And if you plan to run small heterogeneous or homogeneous groups later in the session, this is the time to create them, as described in the section below.

Lighthearted and conference-specific spectrogram introductions

If you are running several spectrograms and have the time, you can introduce participants to the exercise with an enjoyable example. I like to have people line up in order of their birthday. (Just the day of the year—e.g., September 22—not the year they were born!) Before running the spectrogram ask people what they think the odds are that two people in the room have the same birthday.

Nearly everybody underestimates the likelihood that will happen. It turns out that if you have more than 23 people in the room, it's more likely than not that two people share a birthday; with 30, the probability is 70%; with 50, 97%; and with 100, 99.99997%. It's always fun to see people's surprise when they invariably discover shared birthdays; with a large group there will be several sets. In fact, with more than 88 people in the room, there's a better than even chance that there will be three people with the same birthday in the group!

Say something like this:

"In this session we're going to find out about each other and get some information about the group by forming several human spectrograms. To illustrate, I want you to line yourselves up in order by your birthday. Not the year you were born, just the date! But before we do this I have a question for you; what do you think the likelihood is that we'll find that two of you have the same birthday?"

Get responses and then compare them with the statistics given above. For example, since a group of 30 people rarely thinks that any two people will share a birthday, you might say:

"Actually, the odds are about 70% that two of you have the same birthday. Let's find out now!"

If the group has around 100 or more people, ask what they think the likelihood is that three people will share the same birthday. After hearing responses you might say:

"Actually it's very likely that there will be several groups of people who share the same birthday, and the odds are, in fact, that there will be three people here who share the same birthday. Let's find out!"

Continue as follows:

"So, if your birthday is January 1, you should go to that wall [indicate a wall at one end of the human spectrogram corridor]. If your birthday is December 31, you should be standing over there [point to the other wall of the spectrogram corridor]. You'll need to talk to each other to figure out where you should be standing! Find your places!"

Wait while people are moving into position. When everyone has figured out where they should be (and you'll probably hear the surprise of the people who discover they have birthdays in common), poll the group by saying something like:

"So does anyone share a birthday with someone else here? Raise your hand if you do!"

Comment on the results, pointing out if there are three people sharing a birthday. Then say:

"See how quickly we figured that out? We'll be using more human spectrograms during this session."

It can also be fun to run one or two spectrograms about lighthearted topics: how much people like ice cream, what's their favorite day of the week (line up from Monday to Sunday with breaks between the days), how many different states or countries people have lived in, how long did it take participants to travel to the event, or how many conferences have they attended this year. Run these spectrograms quickly, don't spend more than a few minutes total, and only do this if you have several useful spectrograms planned during the session.

Finally, choosing interesting subjects, issues, or concerns that are rankable and that relate to the conference, session topic, or industry can be a great way for participants to learn useful information about each other, discover commonalities, and get a better sense of the composition of the group.

Using one-dimensional human spectrograms for various purposes

The applications of human spectrograms are limited only by one's imagination. They are useful whenever there's a reason to publicly display distributions of participant data or opinions. In addition, they provide an excellent method to effectively create similar or dissimilar teams or small groups for further activities. Here's how to run them:

Uncovering differences and similarities, exploring opinions, displaying the degree of consensus on a topic, or sharing the distribution of a participant attribute

One-dimensional spectrograms provide a great opportunity to obtain and share information about group and individual attributes or opinions that is more complicated than that available via a yes/no vote; for example, the distribution of the number of employees in participants' organizations, or the strength of agreement/disagreement about an issue. If you are planning to run a series of spectrograms, I suggest you start with easy-to-answer questions and move toward harder or more ambiguous topics. Adapt the following example for your specific needs:

"Let's explore how much we agree or disagree about [statement X] by forming a human spectrogram. The space between these two walls [point to them] represents a continuum of agreement to disagreement. You're going to place yourself in the space depending on how much you agree or disagree. So, if you strongly agree with [statement X] you should line up at that wall [indicate a wall at one end of the human spectrogram corridor]. If you strongly disagree with [statement X] you should be over there [point to the other wall of the spectrogram corridor]. Those are the extremes; I invite you to show us where you stand on the line between these two viewpoints. Find your places!"

Once people have found their positions, summarize what you see. For example, if everyone is more or less in agreement, that may be all you need to observe. To find out more about participant thinking or sentiment, walk up and down the line and interview a few people (you can ask for volunteers) at representative points. Provide a microphone if the group is large, or repeat their comments.

After hearing opinions and arguments, it's possible that people may want to change their position in the spectrogram. When appropriate, encourage them to do so. Suggest that participants notice who is standing where on the spectrogram. This helps people find people in common as well as those who have different points of view.

Depending on what happens and your goals for the session, you may move into a discussion of some kind. Someone might suggest a slightly different statement and you may decide to run a spectrogram to explore it. Plan to stay flexible with what comes up while you're using a spectrogram, and be prepared to take advantage of unexpected and interesting opportunities that arise.

Rating a variety of options

One way to explore opinions about options you've developed earlier in a session or plan to put to the group is to create a series of spectrograms, one for each option. For example, you might have three different proposals to increase revenue for an organization. One wall represents unqualified approval of the option, the other represents strong disapproval. Run each spectrogram as described in the previous section, and publicly review the resulting distribution of participants. You may want to mark the median level of approval for each option on the floor of the room. This enables you to determine the level of consensus and identify who strongly favors or opposes a specific choice. Interviewing those with strong opinions can rapidly uncover important issues or constituencies to address.

Creating discussions on opposing viewpoints

If you want to create a discussion about a topic or issue, you can use a one-dimensional spectrogram to check on the degree of agreement. For example, you might ask participants whether they are in favor of increasing expenditures on local public transportation. Once the spectrogram is formed and opposing views are apparent, either interview people along the line to hear representative reasons for their points of view or partition the group at the median point of the line of participants into two teams to discuss the issue. Consider using a two sides fishbowl as described in Chapter 42 to hold a follow-up discussion.

Building heterogeneous or homogeneous groups for further work

When facilitating small group work, you need to decide how to divide participants into groups. Random selection often works well, especially if you ask participants to put themselves in groups with people they don't know. However, it's frequently desirable to create heterogeneous groups with a mixture of experience levels represented (novices through veterans). And occasionally you'll want to divide a group into homogeneous cohorts (i.e., separate veteran groups and novice groups). Spectrograms provide a fast, effective way to do this.

First, run a spectrogram for the attribute that you wish to select on. Usually this will be a "years of experience" spectrogram as described above.

If you want *heterogeneous* groups (the most likely choice), while people are moving into position divide the number of people in the room by the desired group size. Once everyone is in position, walk to one end of the spectrogram and say:

“We’re now going to divide into [Y] separate small groups. To do this I’m going to have each of you count off from 1 to [Y] starting at this end of the spectrogram. When I point at you, say, and remember(!), the next number—that will be your group number. When we get to [Y] the next person starts again at 1.

Please remember your group number! If you forget it, ask the people on either side of you what theirs is so you can figure yours out.”

Walk down the line staying opposite whoever is saying their group number. If people are bunched together, point to them and check that no one is missed. When everyone has counted off, remind people one more time:

“Please remember your group number! If you’ve forgotten it, ask the people on either side of you what theirs is so you can figure yours out.”

If you want *homogeneous* groups, the procedure is simpler. Start at one end of the line, and count, pointing, the first \times people. Tell them they are Group 1. The next \times people are Group 2, and so on.

How? Two-dimensional human spectrograms

One of the most basic and powerful ways we connect with others is by living or working in the same community. As a conference attendee, wouldn’t you like to be able to easily discover other attendees who live and/or work near you? Well, you can use a two-dimensional human spectrogram to do just that in a few minutes!

When it’s time to run the spectrogram, if you have created the map described earlier in the chapter, display it and stand in your room’s clear space in a spot facing the map, positioned in the room so that you mirror the position of the venue marker on the map. If you are using the spectrogram to show where people live or work you might say:

“Let’s find out where everyone [lives/works]. OK, this direction [point, usually from where you’re standing toward the projected map] is north, and where I’m standing in the room is [the location of the conference], so if you [live/work] around the corner you’ll stand right next to me. Here’s a map of [the conference region/country/continent] for the geographically challenged, like me. Please move to stand where you [live/work]. You’ll need to talk to each other!”

If you haven’t prepared a map, point in turn to north, east, south, and west while asking people to move. If there are major cities or landmarks nearby, point to where they would be represented in the room.

Wait while people determine where to stand. Once most people seem to have found their right location relative to you and each other you could say:

"If you've figured out where to stand, take a look at the people around you! Is there anyone nearby who you don't know? If there is, introduce yourself to them! Feel free to swap business cards!"

Give participants some time to introduce themselves to their neighbors. When talking starts to die down, comment on the distribution of people in the room. Ask anyone who is from far away where they live/work.

You can use two-dimensional histograms for any geographical mapping of participant information, such as where they were born, where they went to school, or their favorite vacation destination. You can also use them to investigate any two personal pieces of information that may display an interesting relationship when spectrogram-graphed for the group; for example, participants' self-evaluation of extroversion-introversion versus how creative they see themselves, how much control they have over their schedule compared with how productive they rate themselves, or the size of their staff versus their departmental budget.

How? State-change human spectrograms

A state-change human spectrogram displays information about how participants' opinions, answers to questions, and geographical locations have changed over time. Here are some examples of typical applications:

- Exploring how participant comfort level before an exercise compares with the level afterwards (one-dimensional).
- Seeing how group opinion on a topic or question has changed during the course of the session (one-dimensional).
- Visualizing how participants have moved their job or home locations over time (two-dimensional).

Every state-change human spectrogram needs an initial spectrogram to provide a baseline to compare one or more subsequent changes. If you are planning to run several state-change spectrograms, it may be helpful to decide on a "baseline" spectrogram that can be compared with subsequent variations.

Once you've planned how to use the state-change technique, run an initial one- or two-dimensional spectrogram as previously described. Have participants take their positions and share any relevant observations.

If you are not going to do a comparison right away, ask everyone to remember their position in the room. If the room has distinguishing features, such as posters on the walls, suggest that people

remember where they are standing by using the features as a reference. Otherwise, suggest that they mentally remember their position as a number between 0 and 10. Emphasize that everyone will be asked to return to her current position later in the session.

When it's time to see how the spectrogram has changed, have all participants return to their memorized places in the room.

Once everyone is in their initial spectrogram positions, say:

"OK, don't move yet; listen to the instructions!

We're now going to explore [your response to a new question, or the same question after some session work]."

Either state the question, defining what the two walls represent, or remind participants of the original question and the two extremes represented by the walls, and say:

"Don't move yet! Decide where you're going to move to indicate your [response to the question]. Any questions?"

Answer any questions, and then say:

"When I say go, move to your new spot, and watch what's happening with the group. Go!"

Summarize any trends you see and ask for comments from the group.

If your initial spectrogram was a baseline for multiple state-change spectrograms, now have people return to their initial positions and run the next state-change spectrogram.