



Drawing from Inclusive Education

When you are part of a community, you can get to know and befriend learners over time. You can learn their unique stories, their preferred ways of absorbing content and taking notes, their preferred language and ways of interacting with others, and their individual challenges. You learn about their individual abilities. A classroom is one such example where this sort of learning about learners occurs.

However, with digital security workshops, you may not have that same benefit. People don't always attend trainings consistently; learners often drop in and out of the room during a training; you may be unsure of a person's mental and emotional state; and you may not have a deep enough relationship with the learners to understand the challenges they face when trying to learn something new, or what you need to scaffold for them individually.

Referring to principles of **inclusive education** (that is, meaningfully incorporating learners with diverse needs and disabilities in the same room) makes you a better teacher. That said, implementing inclusive educational practices requires a great deal of preparation and work to be done well. It is best when you have [helpers or co-facilitators who can jump in and individually assist learners who are struggling](#).

What can you do, as a teacher of digital security, to factor in people's abilities and disabilities as you structure your lessons? What can you do to cater to people with vastly different skills and learning styles? What can you do to help *everyone* learn?

Imagine having:

- someone who is hard of hearing;
- someone who is visually impaired;
- someone who struggles with short-term memory;
- someone who struggles with attention;
- someone who has sensitivity to light and/or sound;
- someone who has difficulty taking handwritten notes; and
- someone who has difficulty with mobility

all in the same room for your digital security workshop. You wouldn't know it until they mention it. Perhaps they will mention it because someone is falling behind, or because

they are severely uncomfortable. Perhaps they do not mention it, and you remain unaware that they need help.

Preparing materials

If you are preparing visuals, ensure that your text has a [high enough contrast against the background color](#), is large enough, and is visible for someone with color blindness. If you are preparing printable handouts, consider making an [accessible PDF](#) (one that allows features like text-to-speech). If you have slides, consider having a few printed copies of the slides as well.

If this option is available to you, consider sending out the materials before or immediately after the workshop.

If you are preparing event materials announcing the training, include a point of contact for accessibility concerns. This way, people with disabilities can be accommodated prior to the training.

Configuring a room

You may have someone in the room that needs extra space, whether because they have a wheelchair, scooter, baby carriage, or a great deal of equipment. If you have the flexibility to move tables and chairs, make sure to leave enough room for someone to navigate between these objects. Make space for everyone to be able to leave the room easily. Try walking around the room and seeing what is visible from various seating points. Make adjustments if you find seats with obscured views. Ensure the location itself is wheelchair accessible (it has a clear ramp and entrance, a door that someone can open without assistance, accessible bathrooms, a working elevator if the room is on a different floor, and so on).

If you are in a brightly lit room and are planning on using a dimly lit projector, consider covering the windows, in order to provide enough contrast for those who have difficulty seeing the screen.

If you are in a large room with participants that are seated far away from the front, consider moving around or moving the chairs so that your participants can hear you well. Alternatively, and if this is appropriate for the given group (e.g. it's a public event where

people expect you to project your information), consider amplifying your voice with a microphone.

Before the training

Be clear about who the point person is that can assist with any needs. If this point person is you, say so explicitly; If it is your co-facilitator or a helper, tell the group! For example, consider writing somewhere visible to everyone in the room: “If you need accommodations or individual help, please let me know! I’ll make myself available to help you at certain dedicated points.”

Incorporate dedicated breaks into your lesson plan so people can stretch and use the restroom, and you can adjust for individual help. Write the schedule with the accompanying break times clearly on the board, or somewhere visible. You can use these breaks to assist people with particular needs, or to get them up to speed with the group.

Some questions to ask to ensure comfort include:

“Is everyone comfortable with where they are sitting and do you have enough room?”
(Particularly if you are planning on an activity that requires movement.)

“Can everyone see [me/ the board/ the screen/ the main point of focus]?”

“Can everyone hear me at this volume? Am I speaking at a good pace?”

Make adjustments as needed. Make sure that those who require accommodations are closer to you, or are sitting where they are more comfortable.

When learners struggle with notetaking, or need materials in their hands in order to follow along

Try to provide materials that are [accessible from their devices](#). Consider providing printed handouts that convey the main points of your workshop.

If you have a set series of materials, like a slideshow, consider making the slides available to participants through a link or as a downloadable resource. If you have a lesson plan that you don’t mind sharing with the group, you can make it available to

them as a resource. If you have the resources and means to do so, consider printing out copies of the slides, so that participants can take notes and follow along as you comment on different visuals.

If participants are comfortable with it and it does not put anyone at risk, consider making an audio or video recording available of your talking points.

If discussion topics are not particularly sensitive, consider asking your co-facilitator or helper to take notes for the whole group.

Ask the notetaker to send along the notes to you, and you can then distribute them.

Being flexible and having many different ways to access the content:

It can be crushing to plan an action-packed day, only to find that people are unable to participate in the way that you hoped. Take a deep breath. It's okay if things don't go as planned, and that's to be expected.

If you find that someone is having a hard time following along, modify the activity. Think about what the base level of participation is, and give them a way to access the same content. If you find someone struggles with participating (for example, cutting out paper during a craft-oriented activity), ask them if they'd like assistance with the difficult part (like cutting out the pieces of paper for them). Or, move participants to pairs or larger groups, and encourage the learners to assist each other. Build in enough time for those who are falling behind to get the assistance that they need, or to do so on their own.

Accommodating advanced learners

On the other end of the spectrum, you might find that you have very advanced learners with a solid grasp of computer science and digital security concepts in your audience.

If you have the capacity to do so, prepare supplemental or more challenging activities for them. There will inevitably be someone in the room who feels unchallenged, or as though they know all the material already. Having backup activities or resources to point to will help everyone feel like they're learning.

For example, give advanced learners a more comprehensive handout than the ones allocated to main learners in the group. This handout can give them other alternative activities to pursue. (For example, if the majority of the group is learning about end-to-end encrypted communications and is focusing on Signal, consider sharing other encrypted communications and things to know, like key verification, which tools are available, and nuances of a specific tool.)

Even better: consider making this person a helper and ask them if they'd be willing to assist people nearby.

Sources of tension: learners with heightened concerns

Some learners might need to type out their notes or take photos in order to follow along. You might have someone else in the room who has deep privacy and surveillance concerns, and is uncomfortable with documentation in this way. If this is the case, address this tension early by setting group norms and rules for the session together.

For example: "We all agree that photos are okay, but only if they are of the screen and don't include any participants faces."

"We agree that typing during the presentation is not distracting, if it helps you follow along."

"We have agreed to not take photos during this session, and have instead decided to make slides and all materials available to participants afterward. The notetaker has agreed to omit sensitive information like organization names, names, and neighborhoods people are coming from."

Leaving the room

Some learners may need to leave the room, to stretch, to take medication, to get fresh air, or to address their own personal needs. That's okay, and you can tell them that it's okay to leave if they need to. Remember that everyone will follow along at their own pace, and to be supportive of their needs. When they are ready to return to the room, they will.

Accommodating learning differences: Difficulty with memorization, grouping information, or identifying themes

You can accommodate in quite a few ways!

Write down new words and new phrases.

You should be speaking with the assumption that your audience includes many beginners, and perhaps an expert person mixed in. You will have the fun and hard challenge of teaching to different skill levels. Don't assume knowledge of computer science, and teach to the basic level. For example, don't assume that people know how to type terminal commands. It's easy to forget things like this and use new terms that may be unfamiliar to the audience.

You can say, "I'll do my best to write any new words I introduce on this wall behind me. Please raise your hand if I say an unfamiliar word and forget to write it down."

One way to do this is to have a "[Jargon Ball](#)"—a ball or toy that gets (gently!) thrown at someone who says an unfamiliar term.

Have a large, visible area where you document new terms—perhaps a whiteboard or a projector slide where you can write down new words. This allows people who are new to digital security to look up these words later.

“Tell them what you’re going to tell them. Then, tell them. Then, tell them what you told them.”

This is a great sequence to remember when teaching new information: by priming people for what they are about to learn, they will be better prepared to absorb the new concepts. By reiterating what the key points of a topic are, you will help learners to remember their understanding of the topic. Contrast this with just saying something critical (like, "Don't share your private key") once in passing, and never returning to that critical point. The learner will likely forget the key point!

Unlike coding, where [Don't Repeat Yourself](#) is a common refrain, in teaching, repetition is *encouraged*. Repeat key points for the benefit of the learners. Repetition helps with retention.

List main takeaways and incorporate reflection pauses.

Occasionally pause and say, “So to summarize, the main things you need to know from that last discussion are (thing 1), (thing 2), and (thing 3).” Consider also writing these takeaways in a clear and visible way. The things that you say should be succinct, clear, and related directly to the main thing you are trying to teach. They should be directly tied to your [learning objectives](#).

Provide a clear way for people to access the content after your workshop.

Is there a section on [SSD](#), or on another website, that directly relates to the theme you were discussing? Be sure to clearly point learners toward that link, and to say how they can supplement their knowledge.

Do you have any clear next steps for learners to take? Suggest that they try an activity, like installing a given tool, or contacting a friend through a new chat app. Give them an opportunity to practice what they have just learned.

Keep learning and improving

After each digital security workshop, reflect on the experience. Where did learners have trouble? For example, did anyone mention they had difficulty seeing your handouts or slides? Did anyone mention you were going too fast? Remember these comments, note them down for yourself, and build upon them in future workshops: when you incorporate feedback and adjust your approach, you can make your workshops more inclusive for all.

If you want to learn more about inclusive environments for learners with disabilities, check out writings on [Inclusive Education](#). If you're interested in designing educational materials and web content with accessibility in mind, read up on [Universal Design for Learning](#) and [a11y guidelines](#).