# Supplementary Materials

This guide is a collection of concrete considerations for conducting accessible human-centered work, built off of the examples we learned from interviewees. These supplementary materials are not meant to be a comprehensive guide on how to run accessible human-centered studies. In fact, there are guides for running accessible events online that corroborate many of these suggestions (see [[1–8]](https://www.zotero.org/google-docs/?mUdbSh) below). Instead, this guide serves as a supplement, with more examples than we could include in the paper. Additionally, we recognize that access is different for everyone, so we do not intend for these examples to be generalized- people’s actual needs should always take priority. We also do not expect that these suggestions would all be implemented during the same study. Rather, these examples may provide a starting point for how to think about access planning for your study. Finally, we encourage readers to not treat this document as linear or as the order in which things ought to be done. For example, even though they aren’t listed first, some of the communication considerations may be necessary for running group meetings while the study is being planned and while access needs are initially gathered in early stages. Note, in this document, we use the term “attendees” to refer to both facilitators and participants in an event or study.

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## Planning a Study or Event

These considerations are intended to span all events or studies to help foster a culture of accessibility.

* Be intentional about identifying accessibility needs and gathering the necessary people to help with as-needed access support before events. For example, you may need to recruit more study assistants or volunteers than you may have if you were not planning for accessibility.
* Ensure facilitators have adequate training about disability culture and how to provide the accommodations. Consult the references for more ideas on what to train in.
* Consider how different study designs and event activities, within the greater study, will impact access. For example, provisions for team members during regular meetings may be different than provisions for workshops with a wider variety of people in attendance; different study conditions may necessitate different access provisions.
	+ **Ex:** One interviewee designed a between subjects, rather than within subjects, study to reduce participant fatigue.
* Plan sessions to be longer than activities should take, so people are less likely to feel rushed when giving feedback.

## Communication

As we highlighted in our paper, communication is a key dimension of cultivating access. Here we provide considerations for welcoming different kinds of communication for different activities in events.

### Identifying/Asking About Needs

* Be intentional about asking team members and participants about accommodation preferences and needs ahead of time. You could include a space for attendees to write in needs in screening materials, in correspondence before the activity, and at the beginning of an event.
* Framing accommodations in terms of what people may need, rather than in language that is highly related to disability (e.g., accomodation, accessible), may encourage everyone to share their access needs without feeling forced to disclose disabilities if they do not want to. Discussing access needs does not necessarily require disclosure.
* Give examples of accommodations people can have when asking about their needs. For example, ‘You may request a sign language interpreter, captioner, materials in a screen reader-accessible format, or something else we have not listed here, and we will communicate with you about how best to fulfill it.’
* Account for accessibility needs when negotiating work assignments, prioritizing splitting tasks in a way that is as accessible as possible for each team member. However, ensure team members are gaining the experiences they are working on the project to gain. For example, delegating different administrative tasks based on access needs may not diminish someone’s learning; never assigning a junior researcher to take notes during a study because they do not type could result in them not gaining documentation skills. Instead, team leaders should work with this researcher to find ways for them to take notes, asking for assistance or automating the process if possible and desired.
* Ask for and use people’s preferred language when talking about certain topics or identities, including their disabilities. In screening materials and pre-study correspondence, you can ask how people talk about experiences they have disclosed in screening materials. Ask people to introduce themselves at the beginning of activities and model the type of introduction you’re looking for by introducing yourself. This latter suggestion is particularly useful if collecting screening materials is infeasible.
* Allow attendees to continue sharing access needs during the event and update accomodations and the schedule accordingly.
* Regularly check in with attendees about how they are doing. For example, you can offer a change of pace, stopping, or a break as relevant.

### Interviewing

* Provide a copy of questions before interviews for participants who want time to think beforehand, who comprehend information better when reading, or who need re-prompts during the study. Additionally, alternative and augmentative communication (AAC) users may prefer to prepare some answers ahead of time.
* Try chatting conversationally before an interview, which can increase comfort for some participants.
* Encourage attendees to set the pace. You can do this by communicating to participants and co-facillitators that they can request to share information (speaking, signing, typing) more slowly or quickly, and that you can increase or decrease pauses while they think of a response or between questions or tasks.
* During multi-session studies, provide and review notes about information discussed during previous sessions before or at the beginning of each new session.
* Use questions with neutral wording, so participants feel comfortable giving honest feedback. Power differentials and cultural biases may make this particularly important when working with participants with disabilities.
	+ **Ex:** “Describe your experience with the prototype” rather than “Did you like the prototype?”
* When working with people who may process small amounts of information more easily, ask short, specific questions instead of open-ended questions. Then, follow-up questions can be tailored to their answers.
* Ensure participants, with reminders, that they do not have to answer any questions that make them uncomfortable.

### Facilitating Group Meetings

* Have people say their names before speaking when there are blind attendees or those using interpreters or captioning services.
	+ **Ex**: “This is Bob. [Rest of sentence].”
* Have people announce when they are leaving, entering, and how many people are present in a room, so individuals who do not have visual access to the meeting have an accurate understanding of who’s present.
* Discourage people from having side conversations, so attendees can focus on the task/main activity at hand. If possible, designate separate space for people to have side conversations.
* Ensure people have adequate time to respond and participate in activities, and ensure that others don’t interrupt.
* Consider if breaking large groups into smaller groups would make participants feel more comfortable and/or promote better access to the activity.
* Ensure digital information is accessible to screen reader users. Screen reader users may have different preferences, so check in with them. For example, some file types may be accessible if they only need to read information, but if they need to edit and manage comments, they may prefer a different file type.
* If relevant, consider pairing up people with access synergies.
	+ **Ex:** Someone who can help design visual content (e.g., slide decks) with someone who can produce textual communication (e.g., presentation notes). Note that utilizing access synergies should not replace access support (such as expecting sighted attendees to provide audio descriptions for blind attendees) when needed. Always provide professional access support if that is the attendee’s preference.

### Multiple Methods of Communication

* Consider providing multiple ways for people to communicate including:
	+ Accepting responses viawritten or typed text (e.g., text, email, Word document, etc.).
	+ Accepting responses via voicemails or voice messages.
	+ Using moveable pieces, such as letters, words, or images instead of asking people to write to reduce the dexterity required to participate.
	+ Drawing instead of using words.
* Consider presenting information multimodally and using these mediums to show examples to concretize tasks:
	+ Provide visual aids, such as written instructions or images, instead of relying only on verbal instructions.
	+ Provide closed captioning, so people can engage with information through reading in addition to listening.
	+ Provide visual descriptions and relay visual information auditorily in presentations for people who do not have visual access to the information.
	+ When relevant, provide tactile examples/aides to support content.

### Improving Understanding

* Create plain language translations of information given to participants or attendees (e.g. information sheets, consent or assent forms, protocols, study results, etc.).
	+ The following are resources to support making plain language translations
		- [PlainLanguage.gov](http://plainlanguage.gov/)
		- [“Am I Making Myself Clear?” Mencap’s Guide for Accessible Writing](http://accessibleinfo.co.uk/pdfs/Making-Myself-Clear.pdf)
		- [One Idea Per Line: A Guide to Making Easy Read Resources](https://autisticadvocacy.org/wp-content/uploads/2021/07/One-Idea-Per-Line.pdf)
		- [Plain Language Writing – An Essential Part of Accessibility](https://www.forbes.com/sites/andrewpulrang/2020/10/22/plain-language-writing---an-essential-part-of-accessibility/?sh=4f43c69c7935)
	+ Have plain language summaries of documents and their respective documents reference each other, so readers know both are available.
* When member checking, send summaries of major themes from interviews in addition to transcripts or recordings to help participants consider how their words contributed to the study's findings.

### Working with Interpreters and Captioners

* Hire interpreters several weeks in advance when working with people who sign, such as D/deaf people. When possible, ask and hire signers’ preferred interpreters, with whom they have already built rapport. If content is highly culturally-specific, technical or specific, recruit providers with experience translating in that domain.
	+ Consider hiring a [Certified Deaf Interpreter](https://mn.gov/deaf-commission/news/?id=1063-445006#:~:text=A%20CDI%20-%20or%20Certified%20Deaf%20Interpreter%2C%20is,created%20a%20certification%20program%20specifically%20for%20deaf%20interpreters.) to increase understanding and hiring [pro-tactile interpreters](http://www.protactile.org/) when working with DeafBlind people.
* Hire a captioner when working with D/deaf and hard of hearing people and others who prefer captions. Do not default to using automatic captions unless someone who is D/deaf or hard of hearing explicitly shares that preference.
	+ Consider enlarging caption text by putting them on a large screen when working with DeafBlind individuals.
* Provide signed interpretations of consent forms, interview questions, and other information.
* Type or speak clearly and make your face well lit and visible to support lip reading and viewing facial expressions (for those who need it).
* Provide any relevant study materials (e.g, interview guides, or a summary of the topics that will be covered) to interpreters and captioners before the study so they can prepare to translate jargon.
* Tips to improve communication:
	+ Pause regularly to give interpreters and captioners enough time to translate.
	+ Provide printouts or digital copies of the interview protocol for everyone, especially for interpreters and captioners. Refer to question numbers while interviewing, so everyone can follow along.
* When there are communication breakdowns, it can be helpful to:
	+ Pause until everyone finishes speaking or translating to reset the flow of conversation.
	+ Rephrase questions and provide context to assist interpreters and captioners.

### When Caregivers/Other Stakeholders are Involved

* Include an option to give assent in addition to consent to ensure participants in a guardianship arrangement still agree to participate in the study/event.
* With permission of the disabled participant, have people who are familiar with non-speaking people and AAC users to help facilitate communication.

### Conducting Remote Activities

* Communicate expectations of camera use. For example, some people may feel more comfortable with cameras off and this should be permitted as long as it does not conflict with someone else’s needs. Asking only presenters to have cameras on can ease visual tracking of the meeting. Having presenters’ cameras on may also allow attendees to lipread.
* Mute when not speaking to maintain clear audio and to minimize audio distractions.
* Send links and information over email or text if the chat function on a video call platform is inaccessible.
* Read the chat aloud if the function is inaccessible and attendees find it helpful.
* Allow a call-in option if video call platforms are inaccessible or difficult to use.
* In online meetings, backgrounds should be relatively plain and should not contain motion (e.g., moving virtual backgrounds) to reduce distractions.

## Materials

The second key dimension we highlight is the importance of considering the accessibility of materials. Here we highlight considerations around materials access in different contexts.

### Visual Information

* In written materials, use empty space strategically to avoid overwhelming walls of text.
* Large print, braille, colored paper that does not reflect light, content colors that contrast with background colors, angled stands, and smart devices can be helpful for blind and low vision individuals to read.
* Participants may not have access to PDF editing software, so consent forms can be sent as images so that they can sign them with photo editing tools. PDFs should also be screen reader accessible as image editing tools are generally not accessible, so multiple formats may be necessary.
* Include descriptions of images and videos to increase access for screen reader users.
* Consider the benefits to facilitators and participants of using digital versus physical protocols. Have both available if necessary.

### Alternatives to Technology

* Use physical consent forms when people have no access to, or are unfamiliar with, digital versions.
* Use phone calls rather than video conferencing services if video conferencing is inaccessible or people are unfamiliar with the platforms.
* Physical gift cards are useful when people cannot access digital ones, but physical gift cards may have small text or difficult activation procedures, so people may need assistance to redeem them. Provide accessible instructions for using gift cards and checking their balances.

### Other Material Suggestions

* Consider using an audio recorder to supplement note taking for facilitators.
* Clickable markers and writing devices require less dexterity than capped markers.
* Wikki Stix, Play-Doh, and silicone extruders are effective supplies for rapidly creating tactile content.
* When providing color coded materials, ensure they contrast with their storage containers or display trays.
* Provide and go over event agendas for the event. Provide physical and electronic copies to each attendee.
* Circulate descriptions of the session experience, including in depth sensory details so that participants can request changes or prepare if they think they will be overstimulated. Provide separate, low-sensory spaces with [stimming objects](https://en.wikipedia.org/wiki/Stimming).
* Consider sending materials to attendees during remote events to support access to the activities.
	+ **Ex:** One facilitator and her team sent participants strings with beads that marked pre-measured lengths when participants had to stand a certain distance away from an object during a remote study.

## Space

The third key dimension we highlight is how access to space must be considered, and what aspects of spaces can be arranged to increase access. Below, we highlight temporal considerations for choosing and arranging accessible spaces, and working with attendees’ transportation needs.

### Tips for Organizing Space

* Store materials in easily accessible places and orient everyone who needs to access them.
	+ **Ex:** One facilitator's colleagues rearranged their office, placing the files she needed on lower shelves which she could reach while seated in her wheelchair.
* Adjust seating arrangements to minimize distractions for people with conflicting access needs.
	+ **Ex:** People using digital screens could sit out of view from those distracted or fatigued by digital screens.
* Ensure there are wide, clear paths.
* Leave some space at tables so wheelchair users can pull up without having to move a chair.
* Provide tables with appropriate heights for how they will be approached (standing, sitting, etc.).
	+ **Ex:** Wheelchair users may need different table heights from people who will stand.
* Ensure that there are accessible restrooms close to the meeting location and that everyone knows where they are located.
* Tables should be large enough for the entire group required for an activity, with both chairs and spaces for wheelchairs to pull up, so no one has to be in a separate space.
	+ **Ex:** One facilitator ensured the tables used during interviews were big enough for an interviewer, participant, interpreters, captioner, and a caption screen.

### Choosing a Location

* Consider working with the participants to select a location that is convenient and comfortable for them. However, support facilitators who may need to suggest an alternative if the participant’s proposed location is not accessible for the facilitator.
* Location should be clearly communicated and easy to find. Consider providing extra support to attendees to get to the study location if the location is hard to find or get to.
* Space should be climate controlled to match the group’s access needs as much as possible (e.g., consider if you need a space with air conditioning, if you need to bring fans, if you need to bring blankets, etc.).
* Buildings should be compliant with relevant laws (such as the ADA in the United States), including accessible parking if anyone is driving.
* Meeting places should be close to public transportation (if available in your area).
* Meeting in the same location across multiple sessions can ease transportation burdens.
* Location should have good lighting and minimal background noise.

### Transportation

* Include maps and accessible instructions for accessible routes.
	+ **Ex:** One facilitator curated maps of different accessible routes between event locations that varied in factors such as distance or incline.
* Specified routes may need to be suggested according to individual need.
* If wheelchair users are attending, wheelchair accessible vans can be used to transport people between event locations. Driving staff should know how to manage and secure equipment such as wheelchairs or medical equipment.
* If attendees cannot travel to the space, consider switching to a phone or online method rather than excluding them.
* Plan for late-arriving transportation, picking up attendees from transit stops or lobbies, bringing them to the event location, and guiding them to their transportation after the study.

## Time

The final dimension we highlight is time, and how accessible work can require different expectations around time, when people can work, and how long things take. Below, we highlight temporal considerations for participants and facilitators.

### Event Planning

* Be flexible with scheduling.
	+ Some people may need to leave or arrive early depending on their transportation constraints.
	+ Attendees should know they are allowed to reschedule at any time to accommodate for fluctuating impairments. If rescheduling is not possible because of the study design, facilitators should plan for activities to not be complete and be prepared to reorganize the schedule to prioritize the most important activities.
	+ Facilitators should consider if they should inform participants that they might have to reschedule because of their fluctuating impairments.
* Smaller sessions, or longer sessions with breaks, may be effective in preventing fatigue or keep sessions from being overwhelming.
* Send event reminders in multiple formats or in attendees’ preferred format.
	+ This can be done over email, phone, or text.

### Event Execution

* Provide flexibility for people to work at their own pace. People may need more time to answer questions in the moment, especially if they are communicating through interpreters or using AAC.
* Facilitator should let participants know that they can ask for breaks whenever they want.
* Facilitators might also consider explaining to participants that they might also need a break (disclosing that it is related to a disability is not required).

### Post-Event Data Analysis

* Allow people to work flexible schedules and whenever they have energy rather than setting strict work schedules.
* Use captioning transcripts for data analysis, or pay a service to generate transcripts, instead of asking workers to manually transcribe interviews if data entry is difficult or impossible for data analysts.
* Consider if any processes can be automated. If so, build in the time for those who will use or create them to ramp up and test the automated solutions.
	+ **Ex:** One participant wrote a script to perform all of their quantitative analysis.

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1. \*Asterisked names indicate people who chose not to use pseudonyms. [↑](#footnote-ref-0)