2 Design criteria

This section lays out criteria for a computer tool to facilitate and document participatory methods (hereafter "the tool"). It must meet standards set for participatory methods (Kutsch Lojenga 1996; Czaykowska-Higgins 2009; Norton 2013; Stirtz 2015; Kempton 2017; Yoder 2019) as well as sufficiently document language development work.

To facilitate a participatory method, the tool should not pose any significant barrier to participation. Perhaps the first and most important concern I hear is that *any* computer tool would fundamentally damage the participatory nature of a method. So let me say up front that if the tool requires training, or in any other way prevents people from participating on a large scale, it has failed at facilitating a participatory method[2]. The user interface should be intuitive and require no more than one hour of orientation for someone who has never used a computer before. To accomplish this, decisions the user is asked to make should be straightforward and presented in sufficient context to make the point clear. In most cases, the user should simply select from an appropriately minimal set of options. Where keyboard entry is needed, users should be presented with one field at a time, to minimize the possibility of putting data in the wrong field.

In addition to the need to meaningfully engage the computer novice, the tool should respect the various competences participants may have: language, analysis, logistics or management. Whatever capacities a person *does* have, we should organize our work to incorporate each appropriately, to remove barriers to participation. To respect this criteria, the tool should never present a decision in a way that depends on a competence unnecessary to that decision. Most importantly, activities meant to collect speaker judgments should not depend on anything but a linguistically naïve competence in the language.

All other tasks should be managed by the tool, outside of the view of the user. The tool should automatically record judgments in real time, rather than wait for the initiative or confirmation of the user. This would allow for maximum interruptibility in the face of electrical inconsistencies.

Throughout, the logic and function of the tool must be highly fault tolerant, whether a fault might come from inexperience with computers, human error, or the chaos natural to the participatory collection of data.

To sufficiently document the work, the tool must facilitate the collection not only of speaker judgments, but also sound files to confirm those judgments.

All this data should be stored in a future proof manner. That is, data should be encoded in unicode plain text, in a non-proprietary, publicly available XML format. This is necessary to ensure that data is both manipulable by current technology (e.g., XSLT), and will remain readable in the future —even in the face of legacy font loss or radical changes to proprietary utilities or formats.

Recordings should be appropriately linked to the lexicon with meaningful names, including multiple identifiers like the form itself, its name or context, its gloss, and the identifier for the relevant lexical entry or sense. Including this information in the audio filename makes the file system itself a searchable archive, useful to a much wider set of tools —including whatever sort, filter, and media playing functions are native to the operating system. Additionally, the tool should generate reports which either link to or embed available recordings.

The tool must allow for collaboration and archival in a distributed, version controlled repository. It should in no other way depend on an internet connection, for maximum robustness in the face of internet instabilities.

The tool itself should be cross-platform and built on open tools. This is to ensure the widest possible base of people who can maintain and use the tool in the future.

[2] I like that someone with minimal education and no computer experience can walk into a pen and paper workshop and just sort cards, and I would have the same expectations for a participatory method facilitated by a computer. The computer should facilitate participation, not provide a barrier to it. There will of course always be a need for someone who can do basic computer troubleshooting and maintenance, but there should always be plenty of room for those who have never used a computer before.