PERCEPTION IN THE FIELD

Marc Brunelle

University of Ottawa, Canada

marc.brunelle@uottawa.ca

ABSTRACT

This paper addresses some of the specificities of perception research in the field. Fieldwork preparation and experimental design, as well as more technical aspects of this type of phonetic research, are reviewed and illustrated with examples taken from the author's research in Southeast Asia.

Keywords: perception, fieldwork, techniques, subjects, ethics, Southeast Asia

1. INTRODUCTION

Perception research in the field is characterized by constrained experimental conditions and special technical limitations. It requires a very different type of preparation from research conducted in the laboratory. This paper addresses methodological issues pertaining specifically to perception research, as well as more general questions common to all types of phonetic fieldwork.

2. PREPARATION

Because fieldwork often involves stricter time constraints and more limited technical resources than research conducted in the laboratory, it is essential for field phoneticians to design experimental protocols before reaching their research site. At the same time, the information necessary to prepare well-designed experiments is not always available at one's home institution. This section reviews good practice when trying to balance these two types of constraints.

2.1. What to expect?

When preparing for a field experiment, it is essential to make sure that crucial resources will be available in the field. One obviously has to plan for contingencies like the unavailability/unreliability of computer resources, email or internet connections, but local conditions could be much more difficult than that. A good way to learn about local conditions and to assess the feasibility of a project is to contact researchers who have conducted fieldwork in the targeted area (or local civil servants or NGOs).

First of all, it is crucial to obtain information about the *language community* where one plans to conduct research. Are available descriptions of the language reliable? Is there evidence of salient phonetic variation that could bear on the research questions? Are there signs of intensive bilingualism or obsolescence?

Second, one must assess the *material conditions* of the community. How will one get to the community? Is there local housing? Are electricity and internet connections available?

Third, it is important to understand what *bureaucratic procedures* are necessary to get access to the field site. The Vietnamese government, for instance, requires foreign researchers to be sponsored by a local research institution. This sponsor is directly responsible for the researcher and provides him with introduction letters that must be presented to local authorities (province, district and village) to obtain fieldwork authorizations. As these procedures can be time-consuming, one must find an institutional sponsor several months before the field trip and plan one or two extra weeks just for paperwork.

Finally, one also has to inquire about the availability of consultants and assistants in the community. When time is limited, being able to hire resourceful locals for translation and logistics can determine the success of a project. Fortunately, it is now relatively easy to have preparatory meetings with local researchers and assistants, not only by email, but also with audio-video communication software (like *Skype*). This is an excellent way of getting to know potential consultants and of testing native intuitions and experimental materials before getting to the field.

In the days preceding departure, researchers should make sure to have electronic copies or scans of crucial articles and reference documents and back-ups of all necessary software and computer files (license expiration dates should be double-checked). The full hardware and software set up should also be test. When travelling,

valuable/essential equipment should be stored in carry-on luggage (and should for this reason be as portable as possible).

2.2. Ethical issues

Although the physical and psychological risks involved in perception experiments are almost nil, ethical issues of a socio-cultural nature must be carefully considered. Recruitment is probably the most common issue. For example, researchers should make sure that consultants are not coerced into participation by local researchers or leaders. It is also important not to fuel internal conflicts by only hiring consultants from certain groups (families, clans, cliques). This is especially true when monetary compensation is involved or when prestige can be derived from work with foreigners.

The wider political situation should also be assessed: in countries with authoritarian regimes, subjects should always be aware of the potential risks of working with foreigners.

Obtaining informed consent can also be complicated when there is no common language between the researcher and the subjects or when subjects are illiterate. The help of a translator and/or a procedure for obtaining oral consent can be necessary.

Finally, one should make sure that subjects are fairly compensated. While all expenses (food, transportation, wage losses) should be covered, one has to be careful not to offer unreasonable remuneration to avoid envy in the community or the development of an asymmetrical relationship between the researcher and the subjects. Besides individual compensation, the researcher should always try to make some cultural contribution (recordings of traditional texts, pictures or videos of cultural events) to the community as a whole.

2.3. Planning the field trip

It is strongly recommended to plan more time than strictly necessary for the experimental project. Besides the fact that contingencies must be expected when working in less developed countries or when travelling on international flights, it is crucial to have time to make observations about casual speech in non-controlled conditions and about the sociolinguistic situation. These observations are often crucial in interpreting unexpected research results at later stages. Spending time with community members outside work sessions also facilitates recruitment of

subjects and the development of long-term relationships with consultants. Moreover, even when an experimental design is prepared before reaching the field site, a few days should always be set aside for a pilot study and for adjustments to the procedure. This is even more true when researchers have no access to native consultants at their home institution.

When conditions permit, it is always a good idea to allow for a follow-up field trip. Unexpected issues almost always arise during data analysis and may require additional experimental work.

3. PHONETIC FIELD METHODS

Researchers have less control over experimental conditions and a more limited access to technical resources in the field than in the laboratory. This section addresses some of these issues.

3.1. Assistants and subjects

The ideal assistant can translate, take care of recruitment and logistics and help with experiments. Good assistants have a good network in the community, are dynamic and have enough formal education to be familiar with computers and master foreign languages. Native linguists (or social scientists) and students often make good assistants or even valuable co-authors.

One has to be careful when choosing assistants or consultants as they can introduce biases in the selection of representative stimuli and the subject sample. When looking for an assistant, volunteers or candidates introduced by members of the community are often people who have a pre-existing interest in language and culture and who, for this reason, tend to have well-defined ideas about them. For example, the Eastern Cham community of South-Central Vietnam is diglossic. Besides a colloquial variety used for everyday purposes, there is also a more conservative formal variety, that is not fully mastered by most speakers, but that is perceived as the "adequate" language by the community [2]. When making first contacts with the community, foreign researchers are usually introduced to local intellectuals who master this formal variety and have little exposure to the colloquial language. As there are important phonetic and phonological discrepancies between the two varieties, this can affect the choice of stimuli or cause perceptual biases in subjects.

When recruiting experimental subjects, one should also be careful to control for important

sociolinguistic factors (like dialect, age, gender). On the other hand, one should not expect to be able to create well-balanced representative samples in small communities. Usually, the best practice is to use simple sampling criteria (sex, age, dialect…) and to include other social variables as random factors in statistical analyses.

A few additional factors should be paid special attention when working in less-developed countries. First, it is not uncommon for older or less educated subjects not to have any experience with computers. When experiments are conducted with laptops and mouses, this may be an insurmountable problem. Second, literacy may be less generalized than in Western societies. If written prompts or response choices are used, screening quasi-literate subjects may be necessary (which might in itself introduce biases). Finally, informal observation suggests that the incidence of hearing problems in noisy Third World megalopolises might be higher than in Western countries. While the ideal solution is to bring an audiometer along, a simpler one is to screen participants by asking them to adjust the sound to a comfortable level when listening to a standard recording.

3.2.   Stimuli and procedure

The main difference between preparing stimuli for a laboratory experiment and for a field experiment is that frequently, field researchers have to collect, record or fine-tune stimuli in the field, where technical resources are more limited. We leave the question of recordings to other contributions to this session and focus on the question of synthesis.

Synthesis tools are now fairly accessible. Recent versions of Praat [1] include functionalities for resynthesis as well as an acoustic synthesizer based on the Klatt synthesizer [7]. Thanks to these resources, researchers can now create or modify stimuli in the field, and test them against the intuitions of native speakers. While this allows for more natural sounding stimuli, researchers should not try to generate "perfect" stimuli at the expense of a well-controlled design and should not over-interpret native feedback.

An issue that is often overlooked by researchers is the effect of the language used to conduct an experiment on its results. Since researchers often have a limited command of the language under investigation, especially when working on smaller and less-described languages, a major national language sometimes has to be used for communication with subjects. However, in perceptual experiments, this can prime subjects to carry out tasks in a second language mode. It is thus a good idea to rely on native speakers as main experimenters, but even then, one should control for interfering factors. For example, in a study of tone perception in Vietnamese, it has been shown that a Northern Vietnamese experimenter causes shifts in the perceptual responses of Southern Vietnamese speakers identifying stimuli from their native dialects [4, 5].

Finally, as mentioned above, illiteracy can be a major challenge for field workers. It is sometimes necessary to rely on images rather than text for prompts and response buttons. In an identification experiment on Cham registers recently conducted in Vietnam and Cambodia with subjects illiterate in their native language, we used pictures of imaginary animals as response buttons. Before running the experiment, subjects had to be trained to associate these animals with nonce words.

3.3.   Equipment and experimental conditions

Field experiments are typically conducted on laptops. When choosing a model, it is important to verify the availability of technical support near the field site. Service for some platforms and operating systems can be difficult to find (or unavailable) in less developed countries.

While bringing several laptops allows researchers to work with several subjects at the same time, it might not be an option for the individual researcher who can only carry a limited amount of equipment (response boxes are impractical for the same reason). To save time, it is sometimes possible to rent computer labs at educational institutions (or even internet cafés). One should only keep in mind that all computers should have similar hardware, operating systems and headphones to avoid discrepancies between subjects.

When conducting perception experiments in areas where electricity is not available, one should bring several batteries, which can be recharged in neighboring towns or with a fuel or a solar generator (external chargers allow simultaneous recharging of several batteries). Note that as fuel generators are usually noisy, recharging one battery while running experiments with another might not be possible.

Besides these technical issues, one has to be ready to adapt to unexpected contingencies that can affect experimental conditions. For instance, a study of tone perception in Northern and Southern Vietnamese, which was originally planned to be conducted on university premises, had to be run in hotel rooms located on the top floors of tall buildings in order to avoid the high noise level caused by traffic and construction work in Hanoi and Ho Chi Minh City [3]. Culture-specific issues are also common. For example, Southeast Asians often prefer to show up for experiments in groups of several people. It might therefore be necessary to plan a waiting room to avoid conversation noise and to organize activities for bored participants who have to wait for several hours (this is often a great opportunity to collect data). In such situations, the only way to simultaneously attend to the experiment in progress while entertaining subjects is to have an assistant.

3.4. Software

Several software options are available for running perception experiments. First, Praat constitutes an excellent tool for designing experiments because it is free, light and does not require complicated programming. However, since it does not measure reaction times and has visual limitations (images and special fonts), it is not always adequate for experiments proper. Other software includes Presentation (*www.neurobs.com/*), E-Prime (*www.pstnet.com/eprime.cfm*) and DMDX (*www.u.arizona.edu/~kforster/dmdx/dmdx.htm*).

Some factors must be weighted carefully when choosing software. The cost of licenses (DMDX is free) and operating system requirements are the most obvious. More importantly, the complexity of scripting languages varies greatly. One must take into account the researcher's programming skills and the availability of script libraries and web-based resources when selecting software because even when an experiment is well-designed, it is likely that it will have to be adjusted after pilots are run in the field. A second important issue is timing. When reaction time is an important component of the results, researchers must ensure that time measurement is accurate. Issues to consider are the screen refresh rate, interactions between applications and the operating system, and the unavoidable delays introduced by mouses and the sound playback [6]. The best approach is to

download trial licenses and to make tests before choosing software.

4. ANALYTIC METHODS

Insofar as possible, results should be eyeballed, if not tabulated, after each experimental session. This pre-analysis serves two purposes. The first one is to quickly detect eventual anomalies and problems with the experimental setup. The second is to make sure that subjects are following the instructions and obtaining results that exceed chance level, as subjects that do not satisfy these two conditions might have to be excluded and replaced.

A more general goal of pre-analysis is to refine research questions and to start collecting the data necessary to the development of follow-up studies as early as possible. This is especially important when access to the field site is difficult and the time spent in the community has to be maximized.

5. CONCLUSION

Conducting perception experiments in the field simultaneously requires a high level of preparation and a great degree of flexibility: one has to plan the unexpected. Even in the best conditions, researchers should keep in mind that it is unrealistic to conduct good quality field research on tight schedules and that adaptability and patience are essential skills.

6. REFERENCES

[1] Boersma, P., Weenink, D. Praat: Doing phonetics by computer. *http://www.praat.org*

[2] Brunelle, M. 2009. Diglossia and monosyllabization in Eastern Cham: A sociolinguistic study. In Stanford, J., Preston, D. (eds.), *Variation in Indigenous Minority Languages.* Amsterdam: John Benjamins, 47-75.

[3] Brunelle, M. 2009. Tone perception in Northern and Southern Vietnamese. *J. Phonetics* 37, 79-96.

[4] Brunelle, M., Jannedy, S. 2007. Social effects on the perception of Vietnamese tones. *Proc. of the 16th ICPhS* Saarbrücken, 1461-1464.

[5] Brunelle, M., Jannedy, S. In press. The cross-dialectal perception of Vietnamese tones: Indexicality and convergence. In Hole, D., Löbel, E. (eds.), *Linguistics of Vietnamese.* Amsterdam: John Benjamins.

[6] Forster, K., Forster, J. 2003. DMDX: A windows display program with millisecond accuracy. *Behavior Research Methods Instruments and Computers* 35, 116-124.

[7] Klatt, D., Klatt, L. 1990. Analysis, synthesis and perception of voice quality variations among female and male talkers. *JASA* 87, 791-841.