Cross-linguistic & Cross-cultural Voice Interaction Design: Guidelines from the AVIxD Workshop

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Structure of the Talk

- VUI design when you are not a native speaker
- Language Selection & Switching
- Management and maintenance of multi-lingual applications
- Business Case for Multilingual Apps
VUI design when you are not a native speaker

How to best approach a speech project in a language you don't know
VUI design when you are not a native speaker

- Who are the different kinds of resources that can help you and what are the pros and cons of each?
- At what phases in the project do you need to engage which resources?
VUI design when you are not a native speaker

How to best work in partnership with your chosen resources to ensure the best possible results

The participants discussed their real-life examples of how they have previously approached these kinds of projects, both successfully and not so successfully!
VUI design when you are not a native speaker

The types of people that you might need to engage:

- Translators
- Interpreters
- Local (native) VUI designers
- Bilingual stakeholders
- Call centre agents
VUI design when you are not a native speaker

The types of tasks that you will need them for:

- Requirements review (to ensure local requirements are covered accurately)
- Persona design (to ensure the persona is culturally appropriate)
- Creation or translation of system prompting
VUI design when you are not a native speaker

The types of tasks that you will need them for:

- Grammar generation (depending on the type of grammars to be used: NLU vs. directed dialogue)
- Voice talent coaching (during prompt recording sessions)
VUI design when you are not a native speaker

The types of tasks that you will need them for:

- Usability testing
- Functional testing
- Qualitative testing (does it sound “right”)

ARETOULAKI Guidelines from the AVIxD Workshop
Selection of a language in an interaction is not so trivial as it seems.

- Language selection is a political issue to do with:
  - Immigration
  - Race
  - Political History
The very presence of a language in an interaction can offend some customers.

Long lists of languages take up VUI space at start of the call (e.g. 12 languages).
Language Selection & Switching

- Selection can be via touch-tone or speech even if the service is mostly speech.
- Examples in this presentation are in touch-tone but direct speech equivalents also exist.
Language Selection & Switching

- Different dialed numbers
  - Clean, simple, lines up with collateral
  - Does not support short codes or branded numbers
  - Makes the political issue visible prior to decision to dial the number
Passive up-front menu

- **Example:**
  
  "Welcome to ACME. Para Espanol oprima el dos. Main Menu …”

- Useful for dominant / secondary situations

- Alternative can be to use primary language for language name

  “For Spanish oprima el dos”
Active up-front menu

- *Example:*
  Welcome to ACME. For English press 1, Para Espanol oprima el dos. Pour Francais appuyer sur le trois. <Pause> Main Menu.

- Takes up time, especially for large numbers of callers
- Language order has political and social implications
- So frequent, impatient callers can dial ahead
Language Selection & Switching

**Offer on first error**

- On the first timeout or wrong input or rejected speech input
- Offer the language selection
- Helpful in situations where the language choice is very confident but a chance to change may be needed
Language Selection & Switching

Personalised Language Preferences

- How to identify the preference in the first place (explicit or implicit menu may be needed for first interaction; Web-preferences or preferences from other channels can be used)

- How to identify the person fast enough (Should be keyed to person not account; ANI is typically the method used; Account numbers may come too late and may not be personal enough)

- How to stop them being locked in (Mechanisms to change are needed – e.g. offer on first error)
Management and maintenance of multi-lingual applications

The effectiveness and manageability of a multilingual application can be compromised due to the two extremes:

- Disparate user interfaces developing independently in different language and cultural groups or
- A centrally managed design that may not meet the needs of disparate social groups

The answer lies somewhere in the middle
Management and maintenance of multi-lingual applications

Design Approach:

- Knowing which languages will be supported early on is advantageous.
- The dialogue should ideally initially be written in the language of the overall design authority.
- Identify areas of the dialogue where prompts can be swapped 1-1 e.g. asking for a surname.
- Identify areas of the dialogue where different algorithms are needed for prompt concatenation e.g. date of birth.
- Identify areas of the dialogue that cannot be localised between target locales e.g. UK national insurance number.
- Identify areas of the dialogue where localisation requires a complete redesign of call flow i.e. address.
Management and maintenance of multi-lingual applications

Documentation:

- Maintain one central locale-independent document that can be used by developers to build the configurable application
  - Specific prompt or grammar content is not necessarily important here
- For each locale produce an document for sign-off by the appropriate business stakeholder to include:
  - Configuration of application for the locale
  - Key terms for the locale
  - Locale-specific style guide
  - Locale-specific prompts
  - Locale-specific grammars
Management and maintenance of multi-lingual applications

Development Considerations:

- Ensure configurability of the location where system prompts and grammars should be picked up
- Ensure the language attribute is always used for speech recognition and grammar strings
- Ensure a language specification is included in all prompts concatenation algorithms and TTS generation
Management and maintenance of multi-lingual applications

Development Considerations:

- Build in the ability to swap between ASR and TTS resource, and potentially vendors, depending on language model availability and performance.
- Ensure appropriate sections of the dialogue can be turned on/off dependent on locale.
- Ensure overall framework can handle the linking of locale specific dialogues with those which can be configured for multiple locale.
Management and maintenance of multi-lingual applications

Other Considerations:

- There should be at least one person (maybe a product manager) that has a view of the overall system and the impact of a change request on the system, even if there are localised designers.
- All of the document, not just the prompts and grammar content, may need to be localised depending on your audience.
- If a locale design begins to diverge too much from other locales following change requests, a decision needs to be made if it should now be maintained in isolation.