Singapore voices : an interactive installation about languages to (re)(dis)cover the intergenerational distance

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DESIGNING THE INSTALLATION

The ***Singapore Voices*** installation was first shown at the "Language and Diversity Conference", 5-6 March 2009, at Nanyang Technological University. A technically developed version was made later in the year, and has been on touring display in several of the university's libraries, as well as at Ngee Ann Polytechnic. The installation design was created for the lobby at the Nanyang Executive Centre[2], a huge, open volume with hard surfaces (concrete, granite, glass panels), and therefore, acoustically, a very difficult space for a sound installation, in particular when it is all about voices. The ambient noise level, when empty, was relatively low, 50 dB_A, but more importantly, the echo tail (RT_{60}) was almost 4 seconds in duration, which is much to "live" to benefit the intelligibility of speech. Unfortunately, it is normal to find such construction for public spaces in Singapore. With a crowd of up to a hundred conference delegates making conversation during coffee breaks, the levels soared to 85 dB_A. It would have been foolish to add a sound installation of a broadcast kind, and I chose another strategy. Opting for a sonic narrowcast, with discrete visual design and interactivity encouraging intimacy, the visitors would be lured to approach the displays, and then made to discover that touching the displays released the sound of voices. There was a concern that visitors might miss out on the sonic experience of such an approach, but I argued that if conference delegates were to ignore the artifacts because the sound of our minority speakers was drowned by the majority's inattentive chatter in an acoustically saturated world, that would in itself be a metaphor for exactly the phenomenon that the artwork aimed at highlighting. Ultimately, we found that quite a few visitors did indeed spend time studying the texts and interacting with the displays - and listening to the voices.

Sonic interaction poetics

In several of my earlier works I have used voice recordings as material for sound art and music composition: voice as a performance instrument (Lindborg 1995, Coquempot & Lindborg 2002), or investigating the musicality of politicians' speech-making, e.g. Olof Palme (Lindborg 2007) and Mao Zedong (Lindborg 2006, 2008). When designing the ***Singapore Voices*** installation, I wanted to give a focus on the physical aspects of the sound itself, and what it is that makes someone start to speak. What actions would invite the situation of story-telling? How does a younger person approach an elder? When I was a child, how did I make my grandmother tell me a story? The answer was *touching,* as an interpersonal contact: handshake, hugging, holding hands, resting one's hand on someone's shoulder. Reaching for physical contact became a viable metaphor for the ambition to understand the histories and conditions for speakers of today's minority languages.

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[2] http://www.ntu.edu.sg/NEC/Pages/default.aspx (September 2010).

Figure 5. Plexiglas panel with semi-transparent photo print of Mme Lim Siew Kiat, speaker of Hainanese, and her grand-daughter, a linguistics student, who assisted in the transcription of the interviews.

Visual poetics

The imagery would serve to attract visitor attention, but I did not want to use video, as a certain calmness was felt to be needed. The most striking visual aspect of the exhibition is that the portraits are printed onto a transparent medium, plexiglass. Transparency is a metaphor for disappearance. In this, I was inspired by the works of Bill Viola, for example "Ocean without a Shore" (2007). Fixing the photo images on plexiglass made the portrait less naturalistic. Returning to the linguistic considerations, it should be stressed that it is not the languages as such that are endangered - indeed they are not - but it is the sum total of local Singaporean intergenerational cultural transmissions by individuals which has become as fragile as a stained glass window; almost transparent. The presentation offers the visitor a sense of depth when looking at other visitors through the portrait; as if saying, *"we are all 'see-through'".* The appearance of a younger person *through* the image of an elderly person brings in the dimension of time, and again, of generations. Another important visual element is the pose that the interviewees were coached to take. They would stand firmly, proudly, with the hands turned outwards, as if to say: "I built this place". At the same time, the hands are open, and offered as an invitation to *touch*. The sound interactivity hinges on this visual message being communicated, understood and creating an interest.

DATA COLLECTION

A total of eleven interviews were conducted at the homes of elderly speakers of as many languages. They were contacted through a personal network, in several cases relying on family connections with NTU's linguistics faculty or their students. This fortunate arrangement went far to guarantee a relaxed setting, and the possibility of being able to collect the kind of material that we wanted. Each session lasted

approximately two hours, the main part taken up by an interview, the remaining by a portrait photography session. Documentary audio recordings and video footage were collected as material for various research projects that have been made or are currently ongoing. Figure 6 shows a photo montage from the interview with Mme Tan Cheng Hwee on 12 February 2009. Below it are some of the questions that the interviewer used as a point of departure.

Figure 6. Frames from a video recorded during the interview with Mme Tan: setup, interview and photo session. Team members in the pictures are Velda Khoo, Tan Ying Ying, Joel Yuan, Sherman Tan and PerMagnus Lindborg.

Interview Questions for "Singapore Voices" Project *(exerpt)*

1. **Phase 1**
    a. Small talk – whatever that is culturally appropriate
        i. Recent Chinese New Year celebration (for Chinese speakers) or similar.
        ii. Questions about family – how many children – how many grandchildren etc
        iv. Explain to them what the project is about.
        v. Tell them they don't have to say anything that makes them uncomfortable.

2. **Phase 2 – Oral history**
    a. Generally, we want stories of where they grew up and how they grew up. So any questions that get them talking about the past is fine. Some cues to use:
        ii. Tell me a bit about the kampong you grew up in?
        v. When you were young where did you go when you want to go out at night? Jalan jalan, pat-toh etc.
        vi. Can you tell me a bit about what Chinatown/boatquay/shenton way/ etc. was like 30-40 years ago.

vii. Did you go to school? What did you do for a living?
ix. How old were you when the PAP came into power?
x. How old were you when the racial riots happen? Do you remember anything from that time? Do you remember anything from the Japanese occupation?
xii. How much did a cup of coffee cost when you were young? Do you remember the old style kopitiam in the past? Which hawker centre did you use to go to long ago?

3. **Phase 3 – Language related questions**
   ii. Who do you speak Hokkien with?
   iii. Do your children speak Hokkien? Your grandchildren?
   v. Tell us what you think about the situation with Hokkien now? In 20 to 30 years time?

4. **Phase 4 – Childhood songs**
   a. Do you have any childhood verses/song in Hokkien that you remember?
   b. Do you have any special wish or hope that you want your children or your grandchildren to remember?

Selection of sound excerpts from the recordings

From the audio recording of each interview, Chinese transliteration and phonetic transcription were made by Ng Bee Chin, Tan Ying Ying and their team of linguistics students. Typically,recordings were 60 to 90 minutes long. For each one, I studied the transcripts and listened closely to the recordings, and chose ten excerpts. Several matters had to be considered. Firstly, the musical character of a speech segment had to be interesting in some way, most often paralingual. That is, preference was given to interview stretches that, through sound alone, seemed to strongly communicate an emotion of the speaker: being engaged, agitated, stirred or nostalgically moved. Secondly, the audibility and acoustic clarity had to be sufficiently high. The naturalness of the interview situation being of primary concern, recordings were made at the interviewee's home. However, most Singapore homes have hard walls and floors, and provide an acoustically difficult recording space (in addition to long reverberation time, there would be fans and fridges creating background noise, an open window would let in traffic sounds, a telephone would ring, and so forth). This meant that much material of otherwise great linguistic interest was unsuitable for the purposes of a sound installation. Thirdly, the "story" content was carefully selected, to cover as much as possible the outline of the interview template. Some editing was made, in particular to eliminate interviewer hum-hum and follow-through questions, as well as occasional transient noises. Fourthly, a few sounds such as or hearty laughter, handclaps and coughing were included, in cases when it was felt that they 'belonged' to a persons voice, and appeared frequently. Interviewer and interviewee voices had been recorded on separate channels, but leakage was significant. Onto the interviewee mono channel were applied equalisation, de-noising (AudioSculpt 2009), and normalisation to render the excerpts as clearly as possible; no reverb or other effects were added.

As an example of the speech content, the following section presents the ten excerpts of Teochew speaker Mme Tan Cheng Hwee that came to be used in the Singapore Voices installation. The English renderings was made by this article's author, and were based on the 'raw' translation by Ng's team. The corresponding audio clips are available at the webpages of the author (Lindborg 2010).

1

I wrote (these) on my own, (I) didn't have any teachers. I had no time in the past, Now, the children are grown, I can think of doing things that I like.

自己写，没老师好教啦，早早以前没什么时间啦，等到现在老了孩子大了我就想做我自己要做的东西啰…这样啰

ka22 ki11 xia31, bo11 lao11 si33 ho13 ga11 la53, za13 si33 bo11 si33 mi53 si22 gang33 la31, dang22 ah22 liu22 ji13 zun33 lao13 liu53 no13 kia53 dua11 liu53 wa53 du11 sio22 zoʔ2 wa53 ga33 gi11 ai11 zoʔ2 gai11 meʔ2 kia13 loh55…ah22 neh22 loh22

2

No, (we) should, (I) feel, we are Teochews, (we) should at least speak some (Teochew). (We) don't have to speak (it) all the time but at least sometimes…

没有啦，应该是觉得讲…我们是潮州人应该多少讲一点点，多少啦不要讲全部啦…多少讲一点点这样

bo13 la22, ying31 gai33 si11 kaʔ3 teʔ3 ta31…nang53 si11 teo11 chew13 nang33 ying31 gai22 ke22 jiu53 ta33 to31 deng11 dam11 po33, ke22 jiu53 la11 mai53 ta22 long13 zong53 la22…ke22 jiu53 ta22 to31 deng11 dam11 po33 ah22 neh22 seh22

3

There (they)…they (used)…they used words to read and talk, here we just use it for speech. They used those… those words for speech.

他们那里就啊…他是用…他们是用字来念来讲的，我们这里是这样普通讲的

他们是用那些…那个字这样讲出来的

yi33 nang11 hɯ33 go11 zu11 ah11…yi33 si11 eng11…yi33 nang22 si22 eng22 zee22 lai22 taʔ3 lai22 ta11 gai22, nang53 ji22 go22 si22 ah22 neh22 poh22 tong22 ta11 gai22

yi53 nang11 si11 eng11 hia33 gi33…yi53 gai33 zee11 ah33 neh33 ta11 cuʔ3 lai11 gai22

4

Oh no!

bui lah!

5

[chuckle]

6

I really wanted to learn things but there is no opportunity, really no opportunities.

我是很…很爱读东西的没机会，真的是没机会

wa53 si11 haiʔ3…hao53 ai53 oʔ2 mueʔ2 kia13 ai33 bo11 ki11 hue22, jing33 ai22 si22 bo22 ki33 hue33

7

(He) came from China and didn't work for very long because (he) only earned $100 or more per month which wasn't enough for us. The children needed to go to school, (they) also needed a roof over their heads, (what he earned) was not enough. So, he had to quit (his job). After quitting his job, he thought of opening a provision shop for a living.

从从长山来啊，做没多久因为生活赚了一个月百多块哪里够我们

孩子要读书的，要住屋什么就不够就辞掉工啰，辞掉工就去想到要开杂货店这样生啦

to11 to11 deng22 sua33 lai44 huh11, zoʔ3 bo22 jioʔ3 gue53 ying11 wei11 seh22 wa53 tang33 liu11 gai11 gue11 peh31 gua11 eng33 ma13 na11 gao13 ung31 nang33

no13 kia31 ai11 taʔ1 zi33 ai33, ai31 kia11 cu11 di11 gai33 zu11 buay11 gao11 zu11 si11 dio11 gang33 loh44, si11 dio11 gang33 zu11 kɯ22 sio11 dao31 ai22 kui22 geʔ2 ai33 ah33 neh33 seh33 la31

8

(I) only wish for all these children to know a bit of Teochew in the future. (I) don't expect them to speak it perfectly – as long as they can talk to their grandma in Teochew and can understand (Teochew). Just this, no… (I) don't expect them to know (Teochew) perfectly. Yes, sometimes they visit once a week and I speak to them in Teochew, "Have you eaten?" "Eat".

就是希望以后这些孩子可以读一点潮州话不要讲希望他讲太多啦，可以讲跟阿嬤讲潮州话会听

就是这样，没…没希望讲他全部会

有啦有时一礼拜来我有跟他们讲，叫他们讲潮州话，啊吃饭没，啊吃饭

jiu11 si11 hi33 moh13 ay11 bai53 coʔ3 no33 kia53 oui11 sai13 oʔ2 dam22 po53 teo22 chew33 weh22 mai53 ta53 hi33 moh22 yi53 ta53 kaʔ3 zui11 la53, oi11 you13 taʔ2 ka22 ah33 ma53 ta53 teo22 chew33 weh22 oi22 you13 tia33

zu11 si11 ah22 neh22, bo13…bo13 hi33 moh11 ta53 yi53 long13 zong11 ay11 hio53

wu13 la33 wu11 si33 jiʔ2 lui33 bai11 lai33 wa53 wu11 ka11 yi33 nang11 ta11, kio11 yi33 nang11 ta53 teo11 chew33 weh11, ah11 jiaʔ1 pung11 bue11, ah11 jiaʔ1 pung11

9

Long ago, not being able to go to school was very sad (for me), really very sad, (I) really wanted to go to school.

从早…不能读书我们是很心酸的，实在心酸，很想去读书

za13 si33…bo22 tang13 taʔ1 zi33 nang53 si11 jing11 gek2 sim22 ai33, jing22 jia53 gek3 sim33, jing22 sio11 kɯ31 taʔ1 zi33

10

No, No, No, no special reason. My children are here, my grandchildren are here, why would I want to go and stay there? Right?

不要不要不要…没为什么，这里我的孩子在这里我的孙在这里我怎样去那里住，对不对

mai11 mai11 mai11…bo11 zo33 ni11, jiʔ5 go33 wa53 gai33 kia53 to11 jiʔ3 go11 wa53 gai11 sung33 to11 jiʔ3 go11 wa53 zo22 meʔ3 kɯ22 hɯ22 go11 kia13, dioʔ3 em11 dioʔ3

INTERACTION DESIGN

Eight speakers and eight languages were selected. A display design was drafted and commissioned. The portraits had originally been intended to be shown in full life-size. However, banalities of production line intervened, and when the most important part of the design, the sheets of plexiglass, were delivered, they were found to be 140cm x 40cm: significantly smaller than real people, whose portrait they were meant to hold. The art design had to be adapted to these constraints. Joel Yuan and I decided that portraits

had to be cut to three-quarter full frontal, with only one hand visible (the original design showed both hands), and reduced to slightly smaller than life-size (also, for the tallest interviewees, the feet could not be included). By placing portraits two by two an illusion of two speakers holding each other by the shoulders could be created. Including the visitor, a ring of intimacy would be created. Careful consideration was given to the pairing of portraits, to show people - evidently from different strands of life - in a visually satisfying way. Eventually, the pairings came to allude at the possibility of a fusion, perhaps a symbiosis, of different ethnicities, or of kinship. The displays were placed in a large circle in the lobby of Nanyang Executive Centre. Figure 7 shows a visitor interacting with the panels. Each plexiglass had two sensors attached to its reverse side, at the palm of the hand and at the shoulder.

Figure 7. Interaction with the touch-sensitive displays.

In the first version, we used light sensors connected to a Macintosh computer via a Teabox interface. The second version employed capacitance sensors, and the computer program was implemented on an Arduino board. The soundfiles were played through a FeOnic loudspeaker driver. This solution made it possible to engage the visitor not only through the senses of sight and hearing, but also the tactile. A heavy coil is fixed directly onto the plexiglass, and audio is driven through it to make it vibrate; as a result, the whole pane becomes a loudspeaker element. Figure 8 shows an information flowscheme which was implemented in MaxMSP (Cycling74), written by the author for the purpose of the present work.

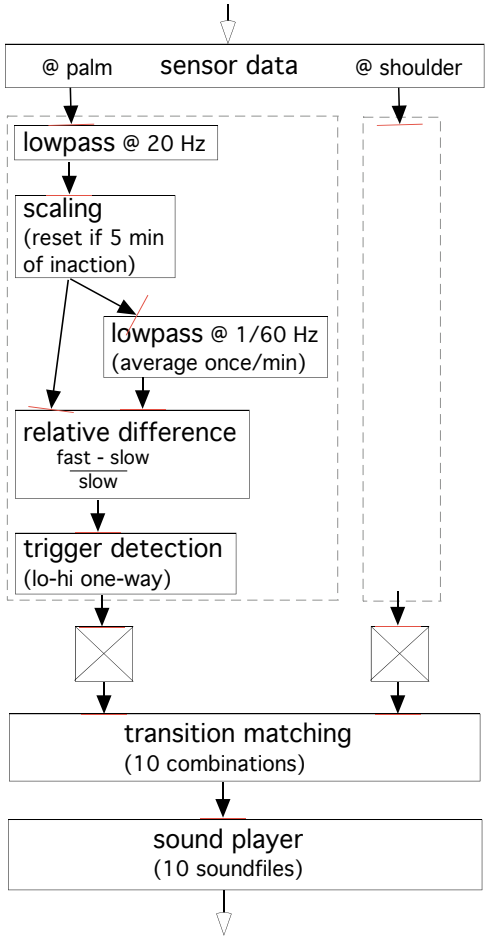

Figure 8. Flowscheme of the interaction design.

The sensor data (from either light or capacitance sensors) is quasi-continuous, so the stream is lowpass-filtered to eliminate flutter and sampled at 20 Hz. The values are compared with an average taken over a longer time interval (arbitrarily set at 60 seconds) in order to compensate for slowly shifting conditions, e.g. daylight variations. The relative difference is used as a input to a low-high one-way threshold detection

algorithm, whose function is illustrated in Figure 9. Finally, a gesture (posture transition) matching algorithm determines which of the ten prepared soundfiles to play.

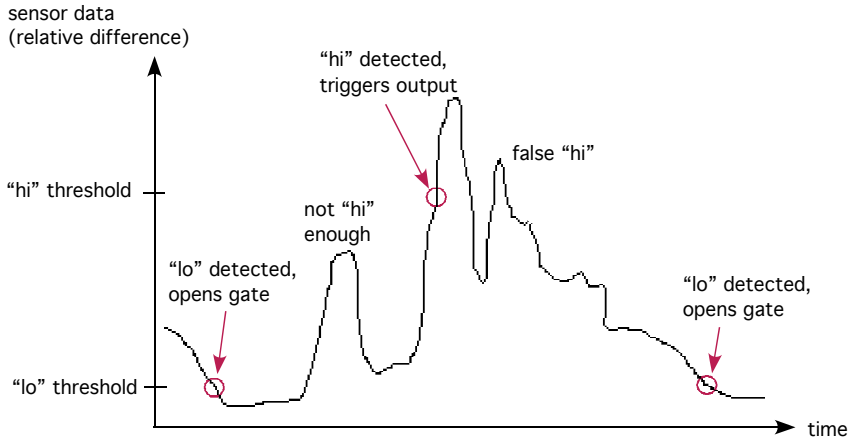

Figure 9. Illustration of how varying sensor data trigger an action. The "lo" and "hi" thresholds must alternate. Only passing the "hi" threshold from a lower value triggers output.

The linguistic team made full transcriptions of the interview material from which I made the selection of excerpts, based both on content, i.e. the telling of a story, and paralingual aspects, what is essentially the *musical* part of a voice; communicative meaning beyond spoken words. I selected ten soundfiles from each hour-long recording. The duration of excerpts ranged from a few seconds - for example, a cough or an outburst of laughter - up to two minutes - a lullaby sung in Malayalam by Mme Chitralekha. The interaction design relies on two capacitive sensors built into each display, at the portrait's shoulder and palm (turned outwards). When the visitor's hand comes in contact with the surface, the electrical field is altered and this is registered by a microcontroller, which has a little bit of human-communication logic built into it. The sensors can be touched either one at a time, or both simultaneously, so that, including 'no-touch', there are four trigger situations. Such a small number seems at first to offer limited options for the design, but the number of transitions between the trigger situations is ten. We can think of the transitions as reflecting different body gestures. In this context, *posture* refers to a static body position (without movement) and *gesture* is a transition from one defined posture to another. We can denominate a transition by indicating the *starting position* of hands, and the *ending position* of hands. "None" means that neither hand is touching the display, "both" that both are touching it, and so forth. We easily find the ten possible transitions:

none-->left, none-->right, none-->both, left-->none, left-->both, right-->none, right-->both, both-->none, both-->left, both-->right

Depending on how we interpret a gesture, we can associate with each a certain response, and choose an excerpt from the voice recording accordingly. For example, the *none-->left* transition, moving to touch with the left hand only, is somehow timid; consequently, this gesture triggers a soundfile that plays only the beginning of a story. At this point, adding the other hand, a *left-->both* transition, triggers the rest of the story.

It will continue for as long as the visitor maintains the hands in position. Then, for example, a *right-->none* transition - letting go - interrupts the story-telling, perhaps with a chuckle. Immediately touching with both hands, *none-->both*, is something like a hug, a most wonderful gesture, and a 'special story' is saved as a response for it. The table in Figure 9 indicates the association between gesture and the character of an audio excerpt.

	visitor gesture: FROM...	...TO	character of triggered excerpt
1	none	left	initiating-1
2	none	right	initiating-2
3	none	both	special-story
4	left	none	exit-short-1
5	right	none	exit-short-2
6	both	none	exit-longer
7	left	both	longer-story-1
8	right	both	longer-story-2
9	both	left	letting-go-1
10	both	right	letting-go-2

Figure 8. A table indicating the kind of spoken audio fragment that the different touch gestures are triggering.

Interaction poetics

In real life, touching, holding hands and hugging are their own rewards. In the micro-world of the ***Singapore Voices*** installation, triggering the sensors of the display-object closes a circuit between the visitor-subject and the speaker-object. A touch acts as the key to unlocking the silence, allowing a knowledge transfer between individuals and between generations. Things simple may be revealed: a reminiscence about childhood days, a song, a hearty laughter. When the visitor starts to *listen* to the voice sound, s/he is no longer only the acting subject exploring an exhibition design but has also become the receiving object in a human conversational exchange. But there is yet a dimension which the installation brings out, almost as clearly as the corresponding real-life situation does. The plexiglass pane acts both as transparent support for the portrait and as loudspeaker membrane. When the visitor places the hands onto the display plexiglass, the most restful body position is to lean slightly onto the panel, adding a bit of pressure; s/he then senses the sound vibrations. At first slightly ticklish, the sensation is soon comfortable, and becomes an unforegoable part of the experience. The voice is heard with the ears, but also, through the vibrations of the panel, the voice is simultaneously felt with the fingertips. The sensation reminds the visitor of the physicality of sound, and touch becomes a metaphor for the effort to reach out and (re-)establish contact between people of different tongues, of different generations. The gesture is small but quintessential, and necessary, if we want to understand the richness of the culture we are living in: understand the histories and conditions for speakers of minority languages.

Figure 9. Interaction with the panels.

REACTIONS

The press release of the installation attracted a certain media attention and debate, and local politicians inspected the content of the papers given at the 2-day conference. While the exhibition was still open, Channel NewsAsia published on their website an article based on a letter from Chee Hong Tat, principal private secretary to Minister Mentor Lee Kuan Yew:

Singapore's experience over 50 years of implementing the bilingual education policy has shown that most people find it extremely difficult to cope with two languages when they are as diverse as English and Mandarin, said Chee Hong Tat… That is why the country has discouraged the use of Chinese dialects. … Mr Chee said the use of dialects interfered with the learning of Mandarin and English. … Referring to Singapore's progress in bilingual education, Mr Chee said: "Many Singaporeans are now fluent in both English and Mandarin. It would be stupid for any Singapore agency or the NTU to advocate the learning of dialects, which must be at the expense of English and Mandarin." (Channel NewsAsia, 6 March).

The bluntness of the statement was not left unnoticed by the linguists who participated in the research for ***Singapore Voices***, but, after discussions, NTU decided not to pick up the gauntlet. Bloggers, however, reacted with anger. Here are a few samples from a thread (Straits Times Discussion Board 2009) that grew to more than 130 posts within one week. Comments are reprinted here as published, including typos:

> *"Mr Chee Tat Hong Tat, the view that you espouse is so flawed that it warrants a considered response. The Bilingual Policy is based on mistaken premises: that those who are "gifted" may be multilingual and those who are not, should resign to be bilingual. It was wrong 40 years ago and it even more wrong today due to advances in the understanding of brain development…. [I]t is a good time for an assesment of the efficacy after decades worth of the Bilingual Policy. … While it is true that many Singaporeans are fluent in at least two languages, many more are not fluent. … [Y]ou will agree that some of our ministers and members of*