The Motivation and Development of MPAi, a Māori Pronunciation Aid

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Background
Māori is the only indigenous language of Aotearoa/New Zealand. It is southern most Polynesian language, spoken by some 160,000 (~4% of population). Māori is an endangered language despite significant efforts to revitalize the language since the 1980s.

The MAONZE (Māori-New Zealand) project team have been studying Māori sound change over time, attempting to determine both internally and externally motivated change. Data includes three groups of speakers: historical elders born in the 1880s, present day elders born between 1920 - 1944, and young adults born between 1969 - 1985.

The pronunciation of vowels in Māori has changed significantly over time.
- /u u/ have become more “fronted” and /e e/ have become more “raised”
- Evidence for diphthong mergers between /ai/ and /ae/ and between /au/ and /ou/.
- Loss of durational distinctions between long and short vowel pairs.

Within the Māori speaking community sound change was not seen as a natural consequence of a living language, but rather as a break in inter-generational transmission, and therefore to be regretted.

MPAi Language Aid
Motivation prompted by a large number of second language speakers of Māori interested in improving their own pronunciation. Māori pronunciation is not well taught, in addition the Māori sound system is different to NZ English.

MPAi language aid is Windows based app, with three components – listening/video (vowels, words) – vowel/word recognition, visual display of user vowels via formant plot. The aid draws on the speaker database developed by the MAOZNE project.

Future Work and Conclusion
- New ways of providing feedback for vowel production Figure 5 (a)
- Generating more videos and animations of articulators, Figure 5 (b)
- Developing a Client/Server architecture for smart devices
- Modernising graphics, Figure 5 (c)
- "A lot of trust will be given to the application, so it needs to work well before it’s released." (Trial Participant)

MPAi References: see XXXXXX

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Trial
Twenty two participants, mostly fluent Māori speakers trialled the aid. Results were recorded with questionnaires and interviews.

Figure 1 The centroids of the Māori monophthongs in F1/F2 space for the historical elders (black), present-day elders (dark grey), youth (light grey) for female (left) and male (right) speakers.

Figure 2 (a) a user recording their pronunciation of /e/, compared to results from the native speaker database. (b) a user recording their own pronunciation of a word, which is recognised and analysed by the aid.

Figure 3 Likert plots of the participants’ responses, with the questions on the left. The top two plots are for the effectiveness questions, the remaining five are the responses for the usability questions.

Figure 4 Word cloud generated from the questions “What did you like about the aid” and “What, if anything, did the aid teach you about pronunciation of Māori?” This plot was generated using TagCloud.

(a) (b)

(c)