From diagnosis to remedial plan:

A psycholinguistic assessment of language shift, L1 proficiency, and language planning in Truku Seediq

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Statement of the problem

- An alarming decline in the number of the world languages
- ‘Recognition of language loss is often delayed’ (Schmidt 1990).
- Formosan indigenous languages (Zeitoun, Yu, and Weng 2003)

- Indigenous children in the dominant-language schools usually experience language and culture shock, drop-out, low achievement, and other social problems (Awasthi 2004)
Truku Seediq

- **3 Seediq dialects**: Teuda, Tkdaya, and **Truku**

- **Population**: 24,000
- **Speakers**: unknown (No speakers of young children)

- **Contact situation**:
  - **Truku**: disappearing language
  - **Mandarin**: dominant language

- **Classification**:
  - Definitely endangered language (Krauss 2007)
  - Amount and Quality of Documentation: *fair* (UNESCO 2003)
An analogy between medical and linguistic diagnosis and remedial plan

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- **Surgeon**: Patient history and physical examination
- **Patient**: Laboratory testing
- **Linguist**: Assessment of language shift
- **Endangered language**: Assessment of language attrition
- **Proficiency tasks**
- **Micro-level language planning**

**Proficiency tasks**

- **HALA experiments**
- **Proficiency tasks**
Research questions

**Language shift**  →  Change in language use

(i) Are younger speakers weaker in Truku than older speakers?
(ii) Do the youngest generations show the greatest decline?
(iii) Is there any correlation between language use and label accuracy or response times?

**Language attrition**  →  Change in language proficiency

What is the participants’ knowledge of the use of phonological and morphosyntactic properties compared with that of a linguistically competent individual (LCI)?

**Language maintenance**  →  Retention of language use & proficiency

What conservation plan will be the most appropriate and effective for the current situation in Truku?
1. Assessment of language shift

HALA experiments
The HALA project focuses on a comparative measure – speed of access to words in one language relative to the speaker’s other language(s) (O’Grady, Schafer, Perla, Lee, and Wieting 2009).

- Frequency & access speed

Frequency of use → Level of Activation (=‘strength’) → Speed of access
## Picture naming tasks: Body-part & Nature-image

- **Participants:** 68 participants in 4 age cohorts

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<th>Cohort</th>
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<td>Older adults</td>
<td>41–65</td>
<td>6</td>
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<td>26–40</td>
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<td>Young adults</td>
<td>16–25</td>
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<td>Youth</td>
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17 people in each cohort
Procedure

- Picture naming (Body-part & Nature-image)
  - recording
  - questionnaire (LEAP-Q) & brief interview

- Measure the response time (in ms) from the onset of the picture to the onset of participant’s reaction
Two indicators of language strength

**Body-part: accuracy**
- 79% 72
- Older Adults 26-40 16-25 10-15

**Body-part: difference in RTs**
- 208 ms 330 543 787
- Older Adults 26-40 16-25 10-15

**Nature-image: accuracy**
- 85 63 25 23
- Older Adults 26-40 16-25 10-15

**Nature-image: difference in RTs**
- 108 186 542 765
- Older Adults 26-40 16-25 10-15

[Charts showing accuracy and response time for different age groups and languages]
Correlation between accuracy/RTs & language use

Body-part: accuracy & Truku use

Nature-image: accuracy & Truku use

Body-part: RTs & Truku use

Nature-image: RTs & Truku use

Each ppt. responded the Q5 in the LEAP-Q “…what % of time would you choose to speak each language?”
(1) All groups other than the older adults are significantly more accurate in Mandarin, suggesting a **clear change in use**.

(2) **Response time difference between Truku and Mandarin increases**, suggesting further decline in youth.

(3) Both **accuracy and RTs correlated with self-reports on language use**: the less Truku is used, the less accurate and slower the participants are.

(4) **Response time (key HALA measure) offers a more precise measure of language access** than accuracy does.
2. Assessment of language attrition

Proficiency tasks
Proficiency tasks:

- **72 Participants:**
  Same 68 ppts in the HALA tests and 4 more new ppts in the Older Adults group (compared to the LCI)

- **Phonological proficiency:**
  (i) Repetition test

- **Morphological proficiency:**
  (ii) Production task: Picture naming task
  (iii) Comprehension task: Act-out task

- **Syntactic proficiency:**
  (iv) Picture-based storytelling task

Repeat Truku 40 lexical items:
1. ['wahɪr] 2. ['sədəɮʊt]...
The picture story ‘Frog, where are you?’
Results (a). Accuracy level & code choice

(i) Repetition: Mean accuracy

(ii) Picture-naming: Mean accuracy

(iii) Act-out: Mean accuracy

(iv) Proportion of non-Truku code choice
 ningal laqi ni huling. Ni, gaga qmita qpatul gana psa ku rungaw hukiy na,
mtaqi ka laqi niiy do, ni huling niiy do o, qpatul do o, mkaraw rungaw ni empqduriq ka hinya da.
mntuy ka laqi ni huling niiy do o, qaana naka rungaw o, ungat ka qpatul da, wada da. kiya ni, laqi ni huling o, msmay gying
gi kimum dha ka qpatul ga ska sapah na niiy. ni, ida na ini xlay. Kiya ni, rmawah kana bbling sapah na. mrawa qpatul ka laqi
niiy. kiya ni, huling do o, mtucung paah bling sapah, dijyun ru e rungaw ka tunux na da. hinya do saa mangan laqi ka huling ni
qrapun na da. kiya ni musa miying eh..ngangut ka laqi ni huling ni miying qpatul. ta yi rung skiya ka walu,
e..e..kradaw...ebruhur...skiya skiya ta baraw. kiya ni, ningal kingla nini.

...ningal kingla, Pisaw hangan na, ningal kingla huling, wawa ka hukin na. ga dha mita e...ga dha e...ningal dha
e...klingla qpatul niqun ruwan e...rungaw ga. babaw na siida o, mtqii. Pisaw ni, wawa da, taqii dha siida do o,qdorit ka
qpatul, qdorit ngangut ka qpatul dha, patul nii. wada qduriiq ka qpatul. maka jyan da ga, tutuy ka laqi nii da. jyan da ga,
tutuy ka laqi nii da. hido, miying ka mi...tutuy ka patul.e...e...tutuy ka laqi nii da o, taan dha do o, ginun dha ka patul.

ningat e...ungat giman dha. wada inu ensa. wada inuqpatul nii da hiku. te srqik bi miying wa, ginun na ga ca ka kana
saw tjan na rukus na ska ruwan luku na hug? gaga ska ruwan nakuy. ha hug? ga gimin ka hnu ur, ga miying ka
huling na ur. huling wawa kiya ga. ungat giman dha. do, jima prajin hnu na, prajin dha e..mlawa e..miying ngangut.

sapa nii o, kingal daki, kingal hudin. sapa nii o, kingal da ki, kingal hudin. kingal patul. taqi daqi niiy da. daqi hudin ka nii
da. patul niiy ka, mtutuy do o, tutuy ka (vay e..). daqai nii, huling nii, tutuy da o o, miying patul da. ma engat patul sa.
laiq nii ga, miying luku. KUYU, ka. miying patul na. huling nii ga, "到處亂跑", "miying patul na. laqi nii da o, "到窗戶那邊呼
call", patul, huling da ni, hukuq nii ga, ptucung 窗戶。al tump na. saa ka laqi nii da, ga su hnu wa sa. laqi nii ga, "帶這個 huling
到森林了, 尋找那一隻 patul. miying do o, ma. 事 "一隻貓頭鷹嚇到 da. wada inu da, "被蜜蜂追 da. laqi nii ga huling ka
niyi ga, "到窗戶那邊呼 da..tutuy ka hinya da.

有一個 lake, 他抓到 patul. 然後放到瓶子裡... 結果他.... take... 了. 然後mtutuy da. 沒有看到 patul. 他就去找 patul. 他的
huling de tunu 卡在瓶子裡. 他從窗戶跳下去, 玻璃破了. 然後他的 huling. 沒有事. 他們就去, 森林裡找 patul. 然後
....(laugh) 那個 rake, 他到外面找. 可是他在後面(fast speed) 在玩 蜜蜂. 後面蜜蜂窩倒了, huling 就被蜜蜂追. 然後, 那
個 rake 還在找他的. 結果被貓頭鷹嚇到, 後面又被蜜蜂....吊走.他就被撞到 ......S...水裡面! 結果那個 rake 叫他.
的 huling. 不要逃. 他看到他的 patul. 已經結婚...生小 patul. 他就帶了一隻 patul 走.
(b). Major types of linguistic differences

**Phonological differences (across age groups)**
(i) Smaller number of phonological distinctions
(ii) Tendency toward optimal syllabification
(iii) Lack of dorsal harmony

**Morphological differences:**
(i) Absence of the oblique noun or oblique marker
(ii) Use of paraphrasing instead of suffixation
(iii) Absence of agent voice
(iv) Misuse of tense or aspect marker

**Syntactic differences:**
(i) Syntactic reduction
(ii) Preference for analytic syntax
(iii) Morphosyntactic transfer
(iv) Circumlocution/rephrasing
(v) Avoidance & Nonstructural consequences of linguistic erosion
(1) As the cohort becomes younger, Truku accuracy becomes lower for the phonological and morphosyntactastic tests.

(2) All data showed that the less Truku is used, the less accurate participants are.

(3) What lexicon they have retained in their narrations is made up of common or highly-frequent items that they use in everyday life.
Diagnosis

HALA experiments

Proficiency tasks

Intergenerational shift

Intragenerational attrition

Emergent bilingualism

(Crystal 2000)
Studies of language attrition/loss and LPP

Language attrition/loss

“Attrition needs to be considered within a multi-component view, relying unavoidably on the complementary contribution of several disciplines of the humanities (Köpke 2007).

Language policy and planning (LPP)

LPP is an interdisciplinary field that “requires an understanding and use of multiple methods in exploring important questions about language status, language identity, language use, and other topics that fall within the purview of research” (Ricento 2006:129).
3. Language *maintenance*

Micro-level language planning
Language planning (LP) & Micro-level LP

- **LP** refers to “deliberate efforts to influence the behavior of others with respect to the acquisition, structure, or functional allocation of their language code” (Cooper 1989).

- **Micro-level LP**/localized language planning integrates ethnolinguistic, national, and global identities (King 2004, and Phyak 2009).
Multi-component view of language attrition/loss

Reluctance to use Lg. A

Shift to Lg. B

Reduced use in Lg. A

Further erosion of proficiency in Lg. A

Psycholinguistic consequences

(1) External factors
   a. Political inequality
   b. Educational disadvantage
   c. Economic disadvantage
   d. Frequent social contact

(2) Internal factors
   a. Attitude and motivation
   b. Identity
   c. Ethnicity
Top-down and bottom-up strategies

**Top-down:** Indigenous education LP

**Modified two-way immersion program**

1) Mobilize agents
2) Develop action plans
3) Negotiate with MOE

**Bottom-up:** Community-based LP

1) Raise awareness
2) Ensure intergenerational transmission
3) Increase Truku domains of use

Truku language and culture center

Genographic Legacy Fund Grant, 2011
Conclusion

- **Language shift** (HALA experiments):
  - Response time offers a more precise measure of language access than accuracy does.
  - Frequency of use can maintain the accessibility of a language.
  - There is a further decline in Youth.

- **Language attrition** (Proficiency tests):
  - There are strong signs of cross-generational decline of Truku.

- **Language maintenance** (Micro-level language planning):
  - Micro-level LP is the most effective remedial plan:
    - Top-down: Indigenous educational planning
    - Bottom-up: Integrative Community-Based planning

Speaker’s strong sense of identity/self-perception
\[ \rightarrow \text{more use in L1} \rightarrow \text{greater accessibility} \rightarrow \text{greater use in L1} \rightarrow \text{full acquisition}\rightarrow \text{healthy language maintenance}\]
Contributions

1. Contribute additional evidence in understanding the process of language loss:
   (i) linguistic description (what is being lost)
   (ii) a sociolinguistic perspective (why the linguistic loss occurs)
   (iii) a psycholinguistic point of view (how language loss occurs)

2. Provide an early diagnosis of language loss and for the assessment of language maintenance efforts

3. Serve as hard evidence to convince the government and Truku local communities to take urgent remedial action for Truku Seediq and most other indigenous languages in Taiwan

4. Conduct language planning with a more comprehensive analysis
Mhuway su

“Thank you”