Creole Tok Pisin Phonology in an adult population

Pilot study of adult Melpa substrate Creole Tok Pisin speakers

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A brief introduction; what is a Speech-Language Pathologist (SLP)doing at your linguistic conference?

- Came to PNG as an MAF wife, was invited to join the Therapy team at Mt Hagen Provincial Hospital
- Serving PNG patients with Speech and Language disorders, e.g. post cleft palate repair, stroke, neurological insult, recovery from Otitis media and a few developmental delays. Special education.
- Began a Masters in applied linguistics online, which introduced me to sociolinguistics and bilingual education issues
- Moved to an M.Phil. by research in SLP. Child phonological development.

Linguistic versus SLP considerations

- SLP priorities shaped by case-loads, time, money
- Goal- accurate linguistic profile of a patient's to set treatment goals.
- I'm aware of the danger of artificial constructs, PNG certainly teaches one linguistic flexibility!
- Foot in both linguistic and SLP camps-Danger of satisfying neither camp! (Crystal, 1982), but linguistic profiling is a tool.
- SLPs are beginning to see the need for research and therapeutic approaches which accommodate linguistic diversity
- In PNG, linguistic research and application to clinical resources are essential- we need your help!

Motivations for research

- No previous written record of SLP work or research in PNG
- Desire to produce assessment and treatment tools with some academic rigour.
- Adult Pilot study sets adult phonology targets for child research
- Child research essential to provide tools for SLP services(Maphalala, Pascoe, & Smouse, 2014) using clinical linguistics(Grunwell, 1977).
- Starting point for future research supporting SLP in PNG

This Study; Adult Pilot study supporting Child Speech Developmental study

- Confirm phonology as it's described in the literature.
- Explores creole Tok Pisin in a specific setting- WHP, Mt Hagen district, urban creole(Melpa substrate) speakers.

Issues/Literature

- **ISSUE**
- Which language of 839 in which to develop resources?
- Creole variation
- Universals

- **RESPONSE**
- Creole Tok Pisin(TP) –most widely used lingua franca.
- Limit with sampling one vernacular substrate group's TP (Melpa)
- Academic issue which informs likely 'phonological processes' at work in this population.

‘Core phonology’- (Smith, 2002)(Romaine, 1992)a useful concept in the context of variation

	bilabial	labio-dental	alveolar	palatal	velar	glottal
PLOSIVE	p b		t d		k g	
NASAL	m		n		ŋ	
AFFRICATE			(tʃ) (dʒ)			
FRICATIVE		(f), (v)	s			h
Lateral/APPROXIMANTS	w			j	w	
flaps			r l			

Melpa (substrate language)consonants (Stucky, 1990)

	Bilabial	dental	alveolar	retroflex	palatal	velar
PLOSIVE						
Voiceless	p	t̪	t			k
voiced	b	d̪	d			
Prenasalised plosives						
	(mp)	(nt̪)	(nt)			(ŋ)
Voiceless	(mb)	(nd̪)	(nd)			
voiced						
Nasals	m	n̪	n			ŋ
Trill			ɾ r			
Approximant					j	
Lateral approximant						ʟ
Voiceless		(l̪) (ɬ)		ɭ		ʟ̥
voiced						

Method; participants

- PARTICIPANTS;
- Nonprobability purposive sample of 12 adults from Mt Hagen district
- Variety of educational, occupational and language exposure statuses.

participants

Gender	Age	Occupation/education	Language exposure	Language exposure rating
M	35+	Senior Teacher elementary	Fluent English and TP	1
M	20+	Junior elementary teacher	Professional TP and English user	2
F	30+	Elementary teacher	Professional TP and English user	2
F	30+	Elementary teacher	Professional TP and English user	2
F	30+	Elementary teacher	Professional TP and English user	2
F	40+	Senior Teacher elementary	Professional TP and English user	2
F	25	Community member	Grade 10	2
F	43	Community member	Primary school only	2
F	25	Qualified nurse	Professional English &TP user	1
M	50	Pastor, community setting.	diploma qualified	1
M	25	Physiotherapy resident	Tertiary degree	1
M	27	IT professional	Tertiary degree, English at home.	1

Method; materials

MATERIALS;

- Stimulus Photo book produced from local scenes & objects. 62+ photos.
- Targeted core phonology by syllabic position (SIWI, SIWW, SFWW,SFWF)
- Targets within distribution limitations.
- Also samples creole phonological extensions noted in the literature; r/l, f/p, additional fricative and affricate use.
- Olympus LS-12 voice recorder.

Method: procedure

- Used stimulus book to elicit target words
- Entire connected speech sample notated in broad IPA
- Later transcription into Excel, both sounds cell by cell by syllable position and connected speech in full.
- Phones rated 1-4 (elicited, not elicited, omission, substitution)
- checked with native speaker and consensus reached on disputed phones.
- Post SIL summer school, phonetic data (and some gloss) prepared and entered into SIL resource ‚phonology Assistant‘

Analysis- Phonetic and phonological data; two approaches, two software packages, two data types.

- Excel; Word based analysis by syllable position.
- Generated percentage of successful elicitations of phones for each of four syllabic positions to detect overall trends
- Generated phonetic inventory, place-manner chart and distribution (phonotactic) table.
- Subsequently, full phonetic transcript of all phonetic material analysed in PA.
- Gave phonetic inventories
- Individual phonologies for each participant then produced and collated.

Phonetic inventory-

Ex Excel; percentage of successful targeted elicitations.

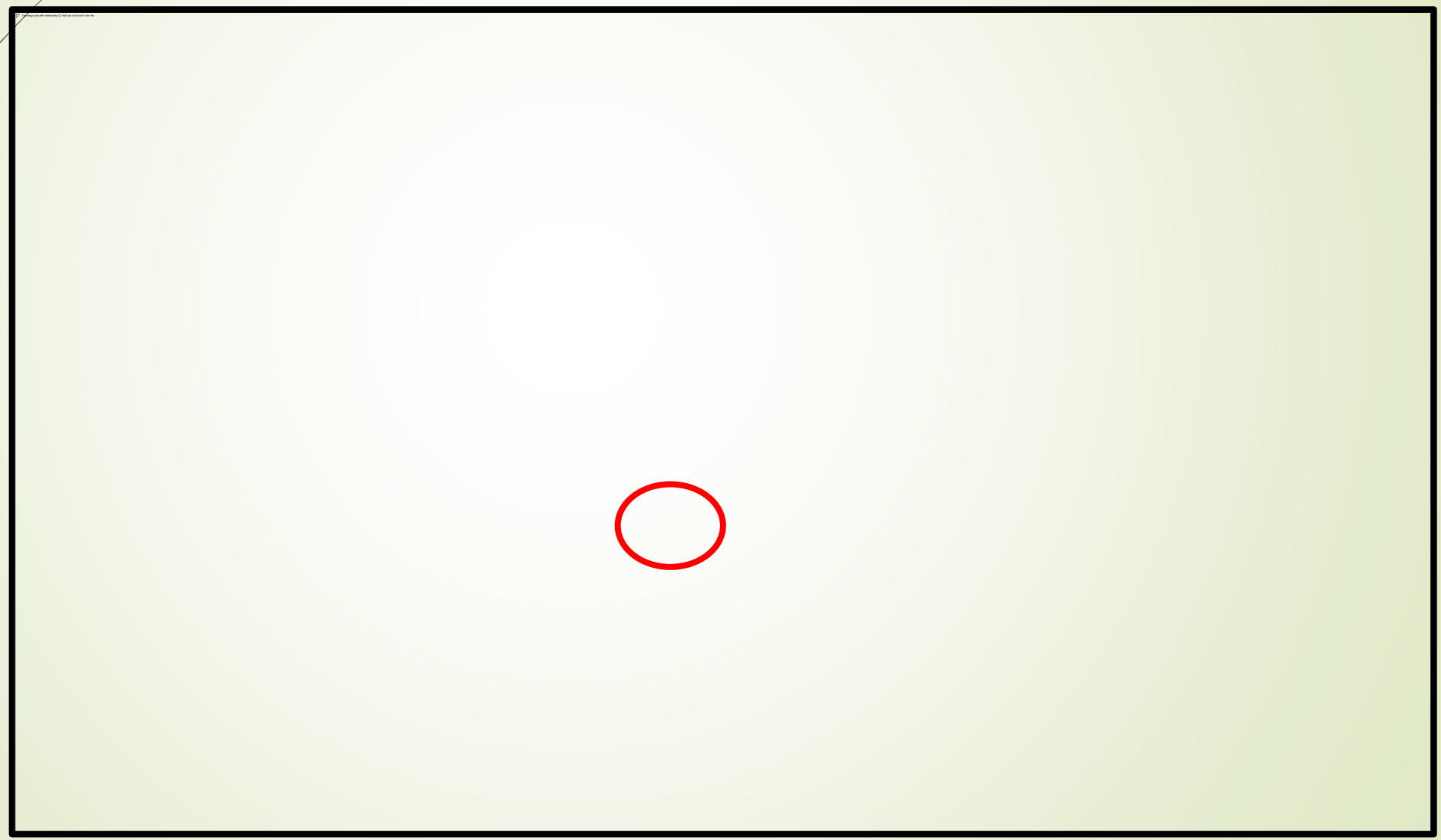
	Voiceless cons	%age rating1 elicitations	Voiced cons	%age rating1 elicitations
PLOSIVE	p	74%	b	89%
	t	82%	d	75%
	k	87%	g	55%
NASAL	m	91%		
	n	74%		
	ŋ	67%		
FRICATIVE	f	83%	v	8%
			ð	8%
	s	73%	z	20%
	ʃ	35%	ʒ	31%
	h	22%		
AFFRICATE	tʃ	33%	dʒ	48%
LATERAL			l	86%
TRILL			r/ɹ	94%
APPROX/GLIDE			w	72%
			j	85%

Phonetic inventory-

Ex Excel; percentage of successful targeted elicitations.

	bilabial		labio-dental	dental	alveolar		post alveolar		palatal	velar		glottal	
Consonant	Unvoiced	Voiced	Unvoiced	Voiced	Unvoiced	V	Unv	V	Voice	UnV	V	UnV	V
plosive	[p]74%	[b]899%			82%	75%				[k]87%	[g]55%		
nasal	91%					74%				67%			
fricative			[f]83%	[ð]8%	[s]73%	[z]20%	25%	31%				[h]22%	
affricate								[dʒ]48%					
lateral								86%					
trill						[r]94%							
approximant/ glide		72%							85%				

Distribution Phonetic inventory. Ex Excel.



Distribution

	SIWI	SIWW	SFWW	SFWF
Plosive	[p] [b [t],[d], [k]	[p] [b [t],[d], [k]	[p], [k],	[p] [t] [d] [k]
Nasal	[m] [n]	[m] [n]	[m] [n] [ŋ]	[m] [n] [ŋ]
Affricate	[(ʧ) [ʤ]69%	(ʧ) [ʤ]65%		(ʧ) [ʤ] 54%
Fricative	[f] (v)] [s] (z)] (ʃ) (ʒ) (h)	[f] [v] [s] (z) (ʃ)	(v) 31% [s]88%	[f] (v) [s] (z) 18% (ʃ)
Lateral	[l]	[l]	(l)]	[l]
Trill	[r]	[r]	[r]	[r]
Glide/Approximant	[w] [j]	[w		

Phonetic inventory

- Limited by presented material to some extent.
- Limited to target words in Excel, PA database broader
- Transcribed participant commentary allowed an opportunity to detect unstimulated phonemes
- variation! core phonology plus some additions; [ʃ], [z], [tʃ], [θ] and [ð].
- Distribution changes; SFWF voiced plosives, SFWF consonant clusters,

Phonological analysis in PA

- Phonological principles guided analysis of likely pairs and groups of phones (Burquest, 2006)
- No minimal pairs except for r/l
- Minimal pairs demonstrated free variation
- Similiar pairs used to establish contrast
- Variation noted in literature analysed; [f/p]

[f] /[p] analyses- example, participant 3.

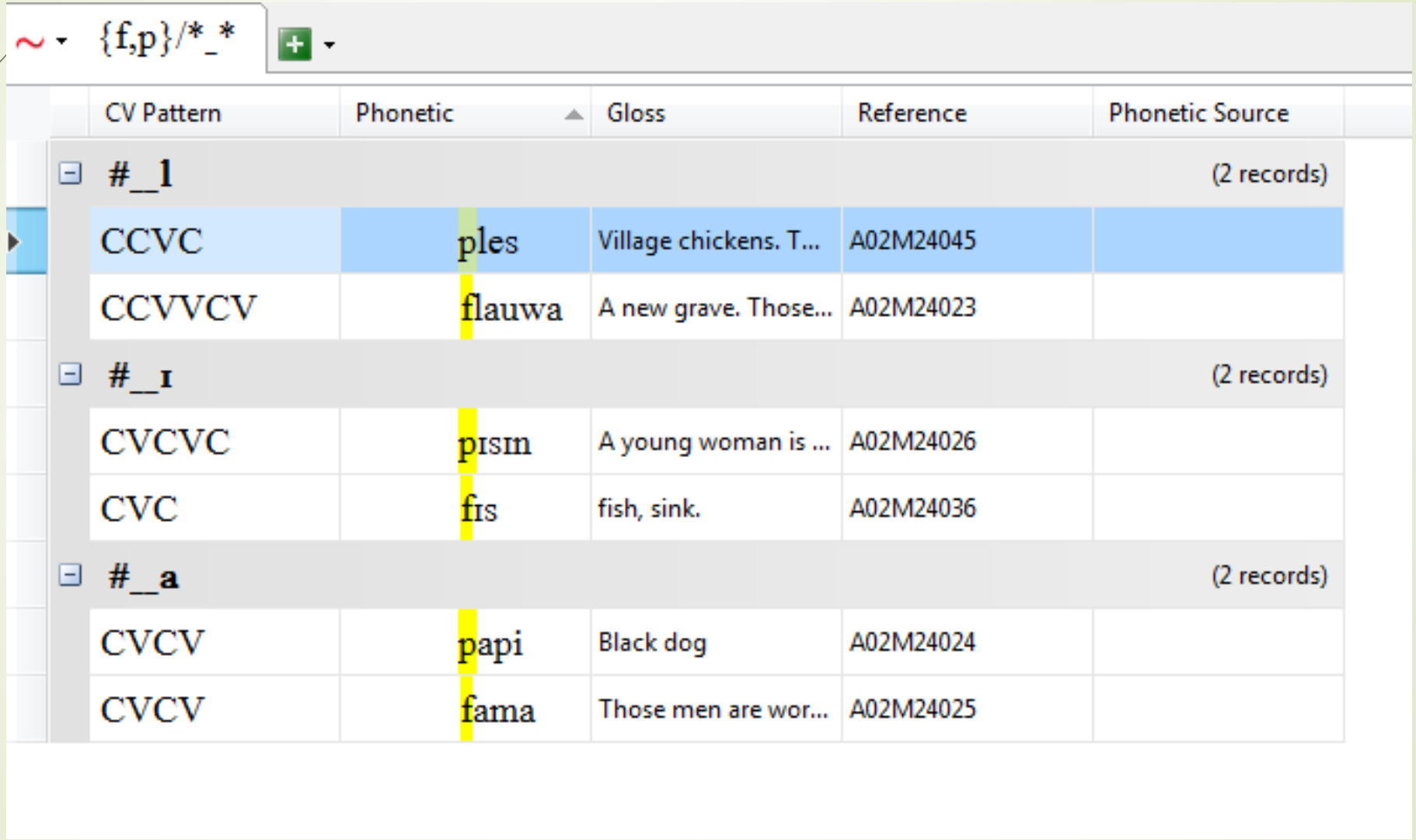


Fig. # Emergence of [f] as a phoneme contrasted with [p]. Labio dental / plosive variation Summary of individual responses;

Example of compiled PA analysis; [f]/[p] contrast

Participant number	Contrast Y/N	Phonological distribution, indicated by	conclusion	Yes 1, no 2
1	N	Free variation [f] and [p] with the same words e.g. [paipela], [faipela]	There is no contrastive use in this participant.	2
2	Y?	No minimal pairs but some similiar pairs to support contrast. E.g. [pɪsɪn], [fɪs] and [papi], [fama]. However, in this sample SIWI contrast only was seen.	Tentative contrastive use emerging	1
3	Y	No minimal pairs but some similar pairs e.g [pɪnis], [fɪs]. However, there were two examples of over correction in [failot], 'pilot' and the possible code switch [froduks],'products'.	Many similar pairs support contrastive use but over correction in loanword suggest contrastive use of [f] and[p] is not yet established	2
4	Y	five similar pairs in phonetic environments SIWI and SIWM e.g.[papi]/ [fama], [dʒɪpa]/dʒenɪfa]. No free variation.	[f] /[p] contrast is established and they are separate phonemes.	1
5	Y	Similar pairs (5) in initial position but no minimal pairs. No free variation except between [p] and [pˀ], the unreleased plosive.	Contrast established tentatively – SIWI only.	1
7	N	Similar pairs in SIWI. e.g. [ples] /[fleg], [faipla]/[pato]but [pis], [pɪnɪs].	Contrast becoming established.	2
9	Y	Similar pairs e.g. [pɪsɪn] /[fɪs], [pegɪm] /[femili]	Contrast is established.	1
10	Y	Similar pairs both in SIWI and SIWW e.g. [dʒɪpa]/[dʒenɪfa]	Contrast is established.	1
11	Y	Similar pairs in SIWI and SFWF positions	Contrast established	1
12	Y	Similar pairs and no FV	Contrast established	1
13	Y	Similar pairs, no FV	Contrast established	1
16	Y	Similar pairs, no FV	Contrast established	1
TOTAL	9/12			9/12

Phonological &distribution Changes. PA analysis

Changed phoneme	change
Fricative use	11/12 use [ʃ], 50% contrastively 9/12 [v] use unchanged from historical core phonology. New phones[z, θ,ð,ʒ] small %age phonetic repertoire, not contrastive
Affricate use	[tʃ] present 11/12, 50% contrastively
[s] and affricate use final position.	100% SFWF position use, only 50% used contrastively with [s]
Devoicing of final (SFWF) stops (Mihalic, 1989)	100% speakers had some SFWF voiced consonant use, but only 42% speakers did not lack some free variation around final voiced consonant usage.
[f] and [p] contrast	9/12 participants clearly used [f] and [p] contrastively
[w] and [v] contrast	7/12 (58%) participants used [w] and [v] contrastively
[h] in SIWI position	2/12 Only 17% of participants had consistent SIWI [h] use. Remainder showed free variation with omission (or SIWI [ʔ])
Consonant cluster reduction (epenthetic vowel insertion)	92% participants exhibited SFWF consonant clusters

Phonological inventory following collation of individual phonologies. (Phones in brackets not included but monitored. Refer to distribution chart for distributional limitations.)

	bilabial	labio-dental	dental	alveolar	Post alveolar	palatal	velar	glottal
Stop	/p/ ,/b/			/t/ /d/			/k/, /g/	
Nasal	/m/			/n/			/ŋ/	
Affricate					(tʃ), /dʒ/			
Fricative		/f/. /v/		(ʃ)				(h)
Trill				/r/				
Lateral				/r/				
approximant	/w/					/j/		

Historical core phonology/ new phonology

	bilabial	labio-dental	alveolar	palatal	velar	glottal
PLOSIVE	p, b		t, d		k, g	
AFFRICATE			dʒ			
FRICATIVE		f, v	s			h
Lateral /APPROXIMANTS	w		l	j		
TRILL			r			
NASAL	m		n		ŋ	

	bilabial	labio-dental	dental	alveolar	Post alveolar	palatal	velar	glottal
Stop	/p/ /b/			/t/ /d/			[k], [g]	
Affricate					(ʧ), /dʒ/			
Fricative		/f/ /v/		(ʃ)				(h)
Trill				/r/				
Lateral				/l/				
approximant	/w/					/j/		
Nasal	/m/			/n/			/ŋ/	

Limitations and further research

- Participant sample size
- Data sample size
- FURTHER RESEARCH – other adult groups,
- - monitor emerging phones

Conclusions

- Adult pilot study confirmed historical core phonology
- Expanded phonetic inventory with phonological and distribution changes

Forms a foundation for child phonological development preliminary study.