

Information about Finnish speech

1. A comparison between Finnish and English phonology

Aspect	Language	Number	Details	Source
Consonants	Finnish	13 consonants	/p, t, d, k, m, n, ɲ, r, s, h, v, j, l/ with four additional consonants used by some speakers /b, g, f, ʃ/	Kunnari & Savinainen-Makkonen (2007)
	English	24 consonants	/p, b, t, d, k, g, m, n, ɲ, θ, ð, f, v, s, z, ʃ, ʒ, h, tʃ, dʒ, j, w, ɹ, l/	Smit (2004)
Consonant clusters	Finnish	Rare	(mainly in borrowed words)	
	English	Approx. 29 syllable-initial and many syllable-final consonant clusters	Many 2 and 3 element consonant clusters in initial position including /pl, bl, kl, gl, fl, sl, pr, br, tr, dr, kr, gr, θr, fr, ʃr, pj, tj, fj, mj, nj, sm, sn, sp, st, sk, spl, spr, str, skw/ and many 2 to 4 element consonant clusters in final position	McLeod (2007) Smit (2004)
Vowels and diphthongs	Finnish	8 vowels + 18 diphthongs + 20 two vowel combinations	Vowels: / i, e, æ, y, ø, a, o, u /	Kunnari & Savinainen-Makkonen (2007)
	English (US-General American)	14 vowels + 3 diphthongs	Vowels: /i, ɪ, e, ɛ, æ, ə, ɜ, ʊ, u, ɒ, ʌ, ɔ, ɑ/ Diphthongs: /aɪ, aʊ, ɔɪ/ (Smit also lists 5 'r'-colored diphthongs)	Smit (2007)
	English (Canadian)	14 vowels + 3 diphthongs	Vowels: /i, ɪ, e, ɛ, æ, ə, ɜ, ʊ, u, ɒ, ʌ, ɔ, ɑ/ Diphthongs: /aɪ, aʊ, ɔɪ/	Bernhardt, & Deby (2007)
	English (UK-Received Pronunciation)	12 vowels + 8 diphthongs	Vowels: /i, ɪ, e, ɛ, æ, a, ə, ɜ, u, ʊ, ʌ, ɔ, ɒ/ Diphthongs: /aɪ, aʊ, ɔɪ, eɪ, oʊ, ɪə, eə, ʊə/	Howard (2007)
	English (Australian)	12 vowels + 8 diphthongs	Vowels: /i:, ɪ, e, æ, ɐ:, ɐ, ɔ:, ʊ, ɜ:, ɜ:, ə/ ⁱ OR /i, ɪ, e, æ, a, ʌ, ɒ, ɔ, u, ʊ, ɜ, ə/ ⁱⁱ Diphthongs: /æɪ, ae, əɐ, æɔ, ɔɪ, ɪə, eɪ, ʊə/ ⁱ OR /eɪ, aɪ, oʊ, aʊ, ɔɪ, ɪə, eə, ʊə/ ⁱⁱ	ⁱ Harrington, Cox, & Evans, (1997) ⁱⁱ Mitchell (1946)
	English (New Zealand)	12 vowels + 8 diphthongs	Vowels: /i, ɪ, e, æ, ə, ɜ, u, ʊ, ʌ, ɔ, ɒ, ɑ/ ⁱ OR /i, ɪ, e, æ, a, ə, ɜ, u, ʌ, ɔ, ɒ/ ⁱⁱ Diphthongs: /aɪ, aʊ, ɔɪ, eɪ, oʊ, ɪə, eə, ʊə/ ⁱ OR /aɪ, aʊ, ɔɪ, eɪ, oʊ, ɪə, eə, ʊə/ ⁱⁱ	ⁱ Bauer & Warren (2004) ⁱⁱ MacLagan (2009)
Tones	Finnish	0 tones	-	
	English	0 tones	-	

Syllable shape	Finnish	$C_{(0-2)}V(V/C)C_{(0-1)}$		Kunnari & Savinainen-Makkonen (2007)
	English	$C_{(0-3)}VC_{(0-4)}$	The smallest syllable is V and the largest is CCCVCCCC <i>strengths</i> .	Smit (2004) McLeod (2007)
Stress-timed or syllable-timed?	Finnish	Syllable-timed	Fixed stress	
	English	Stress-timed	Syllables can be strong or weak. Stress also is used for emphasis.	
Varieties	Finnish	Standard Finnish and local dialects		
	English	Many dialects	Many dialects including General American English, Received Pronunciation (England), Scottish English, Irish English, Australian English, New Zealand English, South African English etc.	
Writing system	Finnish	Latin alphabet	Latin alphabet with one-to-one correspondence between sounds and letters	
	English	Latin alphabet	Roman script loosely related to phonetic realizations of the consonants and vowels.	

References

Finnish studies

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English studies

Bauer, L., & Warren, P. (2004). New Zealand English: Phonology. In E. Schneider, K. Burridge, B. Kortmann, R. Mesthrie & C. Upton (Eds.), *A handbook of varieties of English: Vol. 1. Phonology* (pp. 580-602). Berlin, Germany: Mouton de Gruyter.

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Smit, A. B. (2004). *Articulation and phonology: Resource guide for school-age children and adults*. Clifton Park, NY: Thomson Delmar Learning.

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2. Finnish speech assessments

For a list of speech assessments in Finnish see: www.csu.edu.au/research/multilingual-speech/speech-assessments
Intelligibility in Context Scale: Finnish www.csu.edu.au/research/multilingual-speech/ics

3. Monolingual speech acquisition (summaries and studies written in English)

- Kunnari, S., & Savinainen-Makkonen, T. (2007). Finnish speech acquisition. In S. McLeod (Ed.), *The international guide to speech acquisition* (pp. 351-363). Clifton Park, NY: Thomson Delmar Learning.
- Kunnari, S., Saaristo-Helin, K., & Savinainen-Makkonen, T. (2012). Phonological mean length of utterance in specific language impairment: A multi-case study of children acquiring Finnish. *Clinical Linguistics and Phonetics*, 26(5), 428-444.
- Saaristo-Helin, K., Kunnari, S., & Savinainen-Makkonen, T. (2011). Phonological development in children learning Finnish: A review. *First Language*, 31(3), 342-363.

4. Multilingual speech acquisition (summaries and studies written in English)

General summaries

- Goldstein, B. A., & McLeod, S. (2012). Typical and atypical multilingual speech acquisition. In S. McLeod & B. A. Goldstein (Eds.), *Multilingual aspects of speech sound disorders in children* (pp. 84-100). Bristol, UK: Multilingual Matters.
- Grech, H., & McLeod, S. (2012). Multilingual speech and language development and disorders. In D. Battle (Ed.), *Communication disorders in multicultural and international populations* (4th ed., pp. 120-147). St Louis, MO: Elsevier.
- Zhu Hua & Dodd, B. (Eds.). (2006). *Phonological development and disorders in children: A multilingual perspective*. Cleavdon, UK: Multilingual Matters.
- Yavaş, M. (2007). Multilingual speech acquisition. In S. McLeod (Ed.), *The international guide to speech acquisition* (pp. 96-100). Clifton Park, NY: Thomson Delmar Learning.

Studies of multilingual Finnish speech acquisition

Languages	Country	Study	Age of children	Total number of children (no. of multilingual children)**	Typically/atypically developing children	Speech /language	Production/perception
Finnish-Swedish	Finland	Westman, M., Korkman, M., Mickos, A., & Byring, R. (2008). Language profiles of monolingual and bilingual Finnish preschool children at risk for language impairment. <i>International Journal of Language and Communication Disorders</i> , 43(6), 699-711.	Kindergarten	81 (46) (339 children were screened)	typical and atypical	language	production/perception

Note. * Studies of typically and atypically developing multilingual children published in English were included; however, studies that only included monolingual children were excluded.

**The total number of children may have included both multilingual and monolingual children, so the number in brackets provides the total number of multilingual children.