Multilingual Children's Speech Development

NORWEGIAN

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Norwegian Authors

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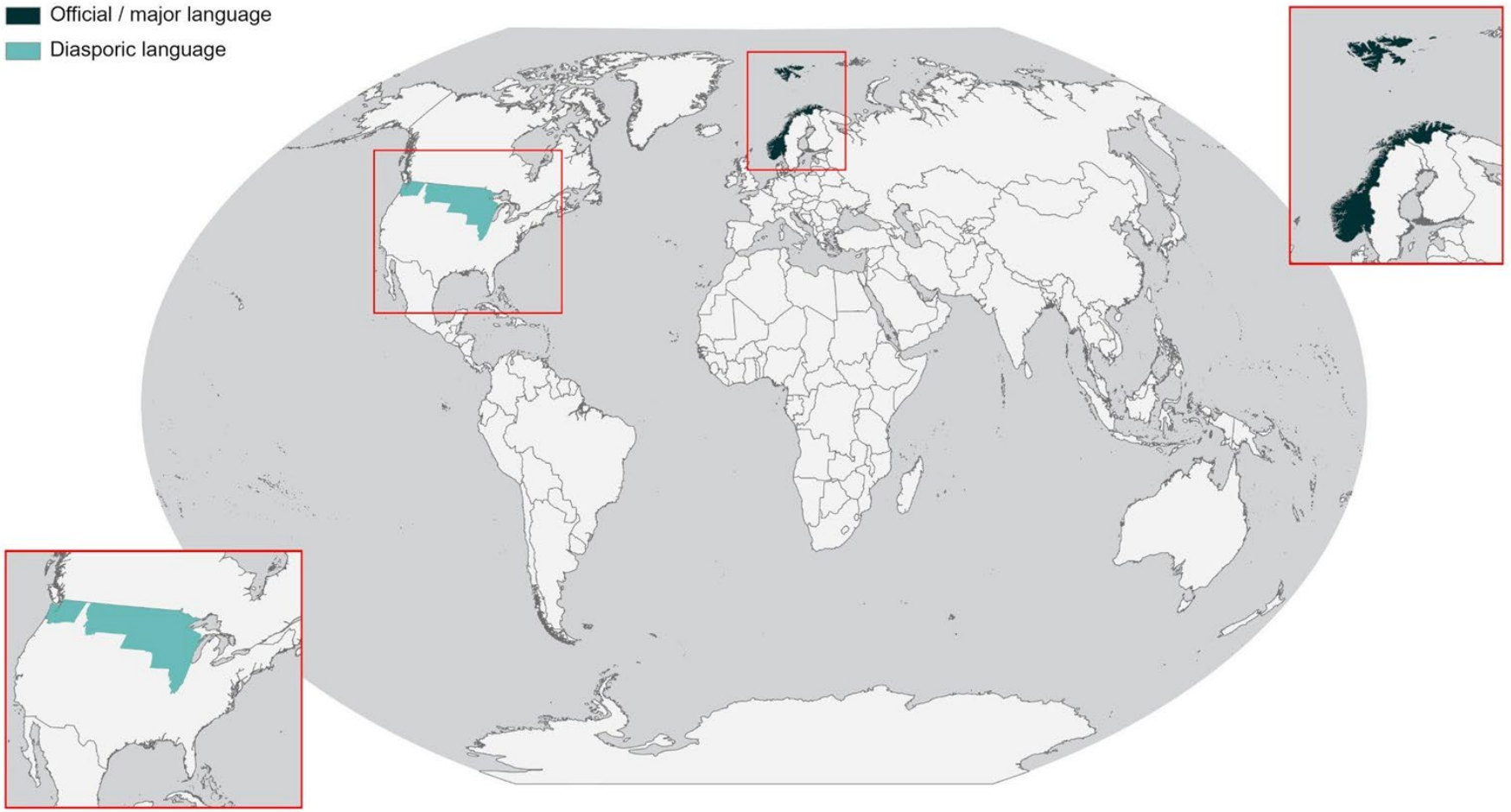
Source: Kristoffersen, K. E., Garmann, N. G., & Simonsen, H. G. (forthcoming). Norwegian speech development. In S. McLeod (Ed.). *The Oxford handbook of speech development in languages of the world*. Oxford University Press.

Norwegian

- **Commonly spoken in**
  - Norway, USA (a few heritage speakers)
- **Dialects and variants**
  - East Norwegian, West Norwegian, Central Norwegian, and North Norwegian
- **Writing**
  - Left to right. Latin alphabet (Roman script)

Norwegian Map



The authors acknowledge assistance provided by the Spatial Data Analysis Network (SPAN) at Charles Sturt University, and in particular Craig Poynter, for his work creating this map. Figures/maps/imagery created using ESRI ArcGIS Pro 3.1 software and data contained within ESRI's Living Atlas.

Norwegian Speech Components

- **Consonants (23):** /p, b, m, f, ʋ, t, d, n, s, l, ɾ, ʈ, ɖ, ɳ, ʂ, ɭ, ɽ, ç, k, g, ŋ, h, j/
- **Consonant clusters (43):** 29 frequently occurring CC, 6 marginal CC, and 8 CCC, all word initial
- **Vowels (19):** /iː, ɪ, yː, ʏ, ʉː, ʉ, eː, ɛ, ə, øː, œ, uː, u, æː, æ, ɑː, ɑ, oː, ɔ/
- **Tones (2):** Realization varies with dialect**,** /^{1}//^{2}/
- **Phonotactic restrictions:** $C_{(0\text{-}3}V_{(1)}C_{(0\text{-}5)}$
- **Prosody:**
  - Typically, disyllabic words have stress on the first syllable
  - The final, the penultimate and the antepenultimate syllable can also receive stress
  - Three degrees of stress: primary stress, secondary stress and no stress
  - Word tones fall on syllables with primary stress

Norwegian
Age of Acquisition

- **Consonants**
  - Early /p, b, m, t, d, n/
  - Middle /f, ʋ, ʈ, ɖ, ɳ, ɭ, k, g, ŋ, h, j/
  - Late /ɾ, s, ʂ, ç, ɽ, l/
- **Consonant clusters**
  - First correct after 2 years, many 4-year-olds have not acquired all clusters /s/-clusters later than other clusters
- **Vowels acquired before consonants**
  - Early /iː, ɪ, eː, ɛ, ə, æː, æ, ɑː, ɑ , uː, u, oː, ɔ/
  - Late /yː, ʏ, ʉː, ʉ, øː, œ/
- **Tones**
  - Acquired at 29–36 months, but possibly earlier

Norwegian Speech Development

- **Percentage correct**
  - To date there is no study of percentage correct
- **Intelligibility**
  - To date there is no study of intelligibility
- **Common phonological patterns**
  - Single consonants: Fronting, backing, stopping, /r/-substitution
  - Consonant clusters: three different strategies
    i. Dominating at first, cluster reduction:
    Non-/s/-clusters: omitting C2: *blå* /¹bɭoː/ 'blue, masc./fem.' → [¹boː]
    /s/-clusters: omitting C1 (/s/): *sko* /¹skuː/ 'shoe, masc.'→ [¹kuː]
    ii. Second, cluster simplification: trikk /¹trɪc/ → [¹tði:cʰ]
    iii. Third, vocalic intrusions, most common in clusters with /r, ɭ/ as C2:
    gris /¹gri:s/ → [gə¹ji:s] 'pig'; *blå* /¹bɭɔ:/→ [bɛ¹ɭɔ:] 'blue'

Norwegian Children with Speech Sound Disorders

- **Norwegian terms**
  - språklydvanske/språklydsforstyrrelse → speech sound disorder
  - fonologisk vanske → phonological disorder
  - artikulasjonsvanske → articulation disorder
  - taleapraksi hos barn → childhood apraxia of speech
  - dysartri → dysarthria
- **Research has focused on**
  - prevalence, assessment, transcription, interventions
  - childhood apraxia of speech (CAS), cleft lip and palate, speech sound disorders, Cri du chat syndrome and children with hearing loss
- **Studies (examples)**
  - Consonant clusters in the speech of children with 5p deletion syndrome (Simonsen, Garmann, & Kristoffersen, 2019)
  - Associations between hypernasality, intelligibility, and language and reading skills in 10-year-old children with a palatal cleft (Særvold, Hide, Feragen, & Aukner, 2019)

Norwegian Speech Assessments

- **Artikulasjonsprøve B** [Articulation Test B]. (Backe, n.d.).
- **Artikulasjonsprøve for registrering av uttalefeil** [Articulation Test for Registration of Pronunciation Errors]. (Johnsen, 1987)
- **Norsk Fonemtest** [Norwegian Phoneme Test]. (Tingleff & Tingleff, 2002)
- **Norsk Logopedlags Språklydsprøve** [The Norwegian Association of Speech Therapist's Speech Sound Test]. (Vidsjå, Hauglid, Kloster-Jensen, & Skei, 1983)
- **SVANTE-N**, Testverktøy for artikulasjons- og nasalitetsvansker – norsk versjon. [SVANTE-N, A tool for testing articulatory and nasality disorders - Norwegian]. (Lohmander, Borell, Henningsson, Havstam, Lundeborg, & Persson, 2013)
- **DIFFKAS** - Differensialdiagnostisk kartlegging av språklydsforstyrrelser [DIFFKAS - Differential diagnostic assessment of speech sound disorders]. (Sandø-Frank & Bjerkan, 2023)

Norwegian Speech Interventions

- **Metafon** (Danish) [Metaphon] (Thomsen, 1996)
- **POPT** (Psycholinguistisch Orientierte Phonologische Therapie; Danish) [Psycholinguistically Oriented Phonological Therapy] (Fox-Boyer, 2017)
- **Praxis** [Nuffield Centre Dyspraxia Programme (Swedish)] (Hellquist, 2011)

Reference

Book chapter

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Presentation

- Kristoffersen, K. E., Garmann, N. G., & Simonsen, H. G. (2023). *Norwegian: Multilingual children's speech development*. Charles Sturt University, Australia. https://www.csu.edu.au/research/multilingual-speech/languages
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