BILINGUAL UPBRINGING: HOW MOTHERESE HAS BECOME MORE DIGITALIZED AND WHAT EFFECT IT HAS ON EARLY LANGUAGE INPUT IN MULTILINGUAL FAMILIES

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Abstract. This paper explores the emerging phenomenon of digital motherese—computer-generated or AI-enhanced child-directed speech—and its influence on early bilingual language development. With digital technologies increasingly integrated into daily family life, children's linguistic input now includes speech from devices such as smartphones, tablets, and voice assistants. Drawing on qualitative data from bilingual families, this study examines how parents mediate between traditional and digital language environments. Findings suggest that while digital tools can enhance exposure to multiple languages, they cannot replicate the socio-emotional richness of human interaction crucial for bilingual development. The study highlights implications for educational policy, parental strategies, and AI design in multilingual contexts.

Introduction. Language acquisition during early childhood depends heavily on the quality and nature of linguistic input. In bilingual families, this process involves managing multiple linguistic systems while ensuring balanced exposure to each. The concept of 'motherese,' or child-directed speech, has been long recognized as a cornerstone of language learning (Kuhl, 2017). However, as technology increasingly permeates home environments, children are now engaging with digital forms of language input that simulate traditional motherese patterns. This paper explores how digital communication reshapes early bilingual development through the lens of digital motherese.

Literature Review.

Research on child-directed speech (CDS) consistently shows that its exaggerated intonation, slower rhythm, and simplified syntax facilitate infants' phonetic and lexical learning (Fernald, 1989; Kuhl, 2017). Within bilingual families, CDS plays a crucial role in helping children distinguish between linguistic systems (De Houwer, 2021). However, the growing presence of digital media introduces a new variable—

artificial speech generated through educational platforms, videos, or AI voice assistants. Studies indicate that such forms of 'digital motherese' emulate the pitch and tone of human CDS but lack adaptive responsiveness (Radesky & Christakis, 2016; Hoff, 2018). Furthermore, research by Holmes, Bialik, and Fadel (2021) notes that parental mediation is essential in ensuring digital media use enhances rather than replaces natural interaction. These insights underline the complex role of technology in bilingual upbringing.

Methodology.

A qualitative research design was used to investigate how digital communication tools influence bilingual language acquisition. Semi-structured interviews and observational analyses were conducted with ten bilingual families residing in urban Uzbekistan. Participants were selected through purposive sampling, ensuring that each family had at least one child under six years old who regularly interacted with digital devices (Patton, 2015). Data collection involved recording parent–child interactions during digital activities and conducting interviews to capture parental perceptions of digital learning tools. Thematic analysis (Braun & Clarke, 2019) was applied to identify recurring themes such as linguistic adaptation, attention engagement, and emotional connection. Member checking (Lincoln & Guba, 1985) ensured the validity and reliability of the findings.

Findings and Discussion.

The findings reveal that digital motherese contributes positively to vocabulary development and pronunciation accuracy, particularly when accompanied by parental involvement. Parents reported that AI-assisted programs such as interactive reading apps and smart speakers help sustain bilingual exposure even when one parent is less proficient in a target language. However, the study also found that overreliance on digital input leads to reduced conversational reciprocity and emotional engagement (Radesky & Christakis, 2016). Observational data indicated that while children responded well to melodic digital speech, they often failed to maintain prolonged attention without caregiver participation. These outcomes suggest that digital motherese can supplement but not substitute human interaction in bilingual upbringing. The study further indicates the need for AI developers to design more responsive, culturally adaptive systems that mirror the contingent feedback of human communication.

Conclusion and Implications. This study concludes that digital motherese represents both an opportunity and a challenge in bilingual upbringing. While it enhances access to diverse linguistic input, its limitations in emotional and interactive responsiveness reduce its effectiveness compared to traditional motherese. Bilingual

families benefit most when digital tools are integrated into shared parent–child activities that reinforce natural dialogue. Future research should explore AI-driven personalization that accounts for cultural and linguistic diversity, ensuring that digital environments support rather than fragment bilingual identity formation. These findings carry practical implications for parents, educators, and technology designers aiming to foster holistic bilingual development in digital contexts.

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