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THE MANY SHADES OF BLUE: COLOR TERM ACQUISITION AND PROCESSING IN RUSSIAN-GERMAN BILINGUALS ACROSS GENERATIONS

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Abstract- This paper examines how bilingual Russian-German speakers across generations cognitively process and categorize color terminology, with particular focus on distinctions between shades of blue. Russian distinguishes between siniy (dark blue) and goluboy (light blue) as separate basic color categories, while German primarily relies on the broader category blau. Drawing upon theories of linguistic relativity, psycholinguistics, multilingual cognition, and intercultural communication, this study investigates how bilingual individuals navigate multiple linguistic systems and whether language influences perceptual processing and cognitive categorization.

I. INTRODUCTION

Language profoundly shapes how individuals perceive and organize the world around them. One of the most fascinating areas within cognitive linguistics concerns the relationship between language and perception, particularly in the categorization of color. Russian distinguishes between two separate blue categories while German primarily uses a single broad term. This study investigates how bilingual speakers cognitively navigate these systems across generations.

II. THEORETICAL FRAMEWORK

The study is grounded in the Sapir-Whorf Hypothesis and theories of linguistic relativity developed by Edward Sapir and Benjamin Lee Whorf. Contemporary research by Lera Boroditsky and others supports the idea that language influences cognitive

processing patterns and perceptual categorization.

III. METHODOLOGY

The research included first-generation Russian immigrants in Germany, second-generation bilinguals, and third-generation heritage speakers. Data collection methods included reaction-time color categorization tasks, semantic association interviews, and bilingual cognitive-switching exercises.

IV. FINDINGS AND RESULTS

First-generation participants maintained strong distinctions between siniy and goluboy. Second-generation bilinguals demonstrated hybrid cognitive flexibility, while third-generation heritage speakers increasingly adopted the simplified German categorization system. The findings demonstrate that multilingual cognition is dynamic and context-dependent.

V. RELATION TO EXISTING RESEARCH

The findings align with previous studies such as Winawer et al. (2007), which demonstrated that Russian speakers discriminate shades of blue more rapidly due to linguistic categorization. This study expands prior work by incorporating intergenerational analysis and emotional associations connected to language and identity.

VI. IMPLICATIONS

This study contributes to multilingual education, translation studies, intercultural communication, artificial intelligence language modeling, and heritage language preservation. It demonstrates that language influences perception, memory organization, and cultural identity formation.

VII. LIMITATIONS

The study acknowledges limitations including sample size, variability in family linguistic environments, and technological differences in digital color display systems. These limitations may have affected reaction-time consistency and semantic interpretations.

VIII. FUTURE RESEARCH

Future studies should include neuroimaging, larger multilingual populations, longitudinal tracking of

bilingual children, and comparative research involving additional language groups.

IX. PERSONAL REFLECTION

As a multilingual professional born in Brazil and educated across Switzerland, Europe, Asia, and the United States, this research reflects my own lived experiences navigating multiple linguistic and cultural systems. My work in diplomacy, interpretation, journalism, and cultural heritage preservation has consistently demonstrated that language shapes identity, memory, and human connection.

X. CONCLUSION

The study demonstrates that color perception is not entirely universal but significantly shaped by linguistic and cultural systems. Russian-German bilinguals exhibit cognitive flexibility that evolves across generations according to heritage language exposure and sociocultural assimilation.

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