

Code-Switching in Bilingual Adolescents: A Psycholinguistic Analysis

Rizki Tiara Ayunda¹, Airen Widyana², Dea Saharani³, Yani Lubis⁴

^{1,2,3,4}Universitas Islam Negeri Sumatera Utara Medan, Indonesia

Email: rizki0304221020@uinsu.ac.id¹, airen0304221011@uinsu.ac.id²,
dea0304221012@uinsu.ac.id³, yanilubis@uinsu.ac.id⁴

ABSTRACT

This study explores code-switching behavior among bilingual adolescents through a psycholinguistic lens, focusing on the cognitive, social, and communicative motives behind their language alternation. As bilingualism becomes more common in multicultural environments, understanding how adolescents navigate between two languages provides valuable insight into their linguistic development and identity formation. Using a qualitative descriptive approach, the research analyzes natural conversations, interviews, and contextual factors that influence the choice of switching codes. The findings indicate that code-switching serves as a strategic tool to enhance clarity, express emotions, maintain social relationships, and negotiate cultural identity. Psycholinguistically, adolescents demonstrate high cognitive flexibility as they move between languages, revealing a strong command of linguistic structures and an ability to adapt language use based on listeners and situations. Additionally, emotional expression often becomes more nuanced when switching codes, especially in peer interactions. The study concludes that code-switching among bilingual adolescents is not a sign of linguistic deficiency, but rather a sophisticated and functional skill shaped by cognitive processes and social dynamics. Understanding these patterns contributes to broader knowledge on bilingual language development and provides implications for education, communication, and cultural studies.

Keywords: Code-switching, Bilingualism, Adolescents, Psycholinguistics, Language Development.

INTRODUCTION

Code-switching has become an increasingly significant topic in the study of bilingual communication, particularly among adolescents who navigate multiple linguistic and cultural environments. As globalization accelerates interactions across diverse communities, young bilingual speakers frequently alternate between languages in their daily conversations. This linguistic behavior not only reflects their communicative needs but also illustrates their cognitive capacity to manage two linguistic systems simultaneously. Adolescents, in particular, often experience various social pressures, identity negotiations, and cultural influences that shape their language choices. As a result, understanding code-switching within this demographic provides valuable insight into how language functions as both a cognitive tool and a marker of social belonging. Furthermore, the growing prevalence

of bilingualism in schools, neighborhoods, and online spaces underscores the urgency of examining the psychological mechanisms underlying such language practices. Investigating these factors deepens our understanding of how bilingual adolescents construct meaning, express identity, and adapt to their social worlds (Smith & Johnson, 2020).

Psycholinguistics offers an analytical framework for exploring how bilingual adolescents process language internally and externally during code-switching. This field examines the mental operations involved in language comprehension, production, and storage, making it essential for explaining why and how young bilinguals shift between linguistic codes. Through a psycholinguistic perspective, code-switching is seen not as random or careless mixing but as a strategic cognitive action influenced by working memory, language dominance, emotional triggers, and situational cues. Adolescents often develop highly flexible cognitive control systems that allow them to monitor linguistic input, select appropriate lexical items, and maintain grammatical accuracy across languages. Such abilities reflect not only linguistic proficiency but also deep psychological adaptability. By focusing on these internal processes, researchers can better understand whether code-switching enhances cognitive development, supports communication efficiency, or reflects specific emotional and social motivations in adolescent language use (Garcia & Morales, 2019).

The social environments in which adolescents grow up play a crucial role in shaping their code-switching behavior. Peer groups, family interactions, school settings, and digital media platforms all provide dynamic spaces where linguistic alternation becomes a routine practice. Adolescents tend to switch codes to match the language preference of their interlocutors, assert group membership, and maintain conversational harmony. Moreover, social identity theory suggests that young people continuously construct and reconstruct their sense of belonging through language use. This means that code-switching can serve as a powerful tool for signaling cultural affiliation or negotiating hybrid identities. The influence of social media further amplifies this behavior, as adolescents engage with multilingual content, memes, and online communities that encourage fluid language mobility. Thus, examining the sociocultural context provides essential insights into why code-switching is so prevalent among young bilingual speakers and how it supports their identity development (Lee & Thompson, 2021).

Educational settings present another important domain where bilingual adolescents frequently engage in code-switching. In multilingual classrooms, students often alternate between languages to clarify concepts, support peer learning, or express complex ideas more effectively. Teachers who understand this behavior may view code-switching as a resource rather than an obstacle, using it to scaffold instruction and promote deeper comprehension. Psycholinguistic research also suggests that switching between languages can help students access stored knowledge more efficiently, bridging gaps between academic content and their

linguistic repertoire. However, some educational policies still discourage code-switching, labeling it as improper or detrimental to language mastery. Such perspectives overlook the cognitive and social benefits of bilingual language use. Therefore, analyzing code-switching in educational contexts helps reveal its pedagogical value and challenges long-standing misconceptions about bilingualism in formal learning environments (Anderson & Rivera, 2018).

Identity formation is a central developmental task during adolescence, and language serves as one of the most important tools for expressing personal and cultural identity. For bilingual adolescents, code-switching offers a flexible means of navigating complex identity landscapes. Switching between languages may signal emotional closeness, demonstrate cultural pride, or differentiate between formal and informal contexts. In some cases, adolescents switch codes to resist social norms or align themselves with specific cultural subgroups. Psycholinguistically, identity-driven code-switching reflects not only social intention but also internalized linguistic associations that link certain emotions or memories to specific languages. This interplay between identity and linguistic choice highlights the deeply personal and symbolic nature of code-switching. Understanding this dimension provides researchers with a more holistic view of bilingual adolescents' language practices and the psychological motivations behind them (Martinez & Lopez, 2022).

Technological advancements and digital communication have significantly influenced the frequency and patterns of code-switching among adolescents. Online platforms such as social media, messaging apps, and gaming communities expose young users to multilingual interactions on a daily basis. Digital spaces often encourage rapid, informal communication, making code-switching a natural mechanism for expressing humor, emphasis, or emotional nuance. Moreover, automated translations, trending multilingual content, and globalized youth culture promote linguistic fluidity. From a psycholinguistic perspective, constant exposure to multilingual input enhances cognitive flexibility and primes bilingual adolescents to shift between languages effortlessly. The online environment thus becomes a catalyst for code-switching, shaping not only communication patterns but also linguistic preferences and identity expressions. By studying digital communication, researchers gain insight into how technology contributes to the evolution of bilingual behavior and reinforces language alternation as a modern communicative norm (Rahman & Hughes, 2020).

Code-switching is often misunderstood by the public as a sign of linguistic confusion or insufficient proficiency in one or both languages. However, psycholinguistic studies consistently show that bilingual adolescents engage in code-switching deliberately and purposefully. Rather than signaling weakness, switching codes reflects advanced cognitive control mechanisms such as inhibition, monitoring, and lexical retrieval. Adolescents demonstrate the ability to choose the most appropriate language for a specific context, indicating strong metalinguistic awareness. This demonstrates that code-switching is a highly functional

communication strategy that enhances clarity, emotional expression, and interpersonal connection. Therefore, challenging negative stereotypes about bilingual language use is essential for acknowledging the linguistic competence of bilingual adolescents. A clearer understanding of the cognitive processes behind code-switching helps shift public discourse from deficit-based assumptions to strengths-based perspectives that recognize bilingualism as an asset (Nguyen & Carter, 2017).

LITERATURE REVIEW

The theoretical overview of code-switching in bilingual adolescents emphasizes that language alternation is a cognitively regulated and socially shaped behavior rather than a sign of linguistic deficiency. Psycholinguistic research demonstrates that adolescents rely on executive functions—such as attention control, inhibition, and working memory—to manage two active linguistic systems, enabling them to alternate languages strategically during communication. Linguistic constraints further influence where switches occur, with adolescents showing sensitivity to syntactic boundaries and lexical accessibility, indicating that switching follows rule-governed structural patterns. At the sociolinguistic level, code-switching reflects identity expression, peer-group affiliation, and cultural alignment, showing how adolescents use language choice to negotiate social belonging. These combined cognitive, linguistic, and social dimensions reveal that code-switching is a dynamic interaction of internal processing and external communicative demands, illustrating bilingual adolescents' adaptive linguistic competence (Gross & Kaushanskaya, 2021).

1. Cognitive Mechanisms in Adolescent Code-Switching

Code-switching among bilingual adolescents is strongly influenced by underlying cognitive mechanisms that regulate linguistic activation, inhibition, and monitoring. Adolescents rely on executive functions—particularly working memory and cognitive flexibility—to navigate between two linguistic systems during real-time communication. This process requires the simultaneous activation of both languages while suppressing irrelevant lexical items, enabling speakers to alternate languages strategically rather than randomly. Studies show that cognitive load influences switching frequency and accuracy, with higher demands often resulting in more spontaneous or unplanned switches as adolescents manage processing constraints (Gross & Patel, 2021).

2. Linguistic Constraints and Structural Patterns of Code-Switching

Code-switching is governed by linguistic constraints that determine where and how switches can occur without disrupting grammaticality. Adolescents tend to switch languages at syntactically permissible points such as clause boundaries, noun phrase edges, or conjunctions, demonstrating rule-governed behavior rather than arbitrary alternation. These structural patterns support theories that bilinguals maintain separate grammatical systems that interact dynamically during language

use. Research demonstrates that bilingual adolescents are sensitive to matrix language dominance and morphosyntactic compatibility, shaping the ease with which specific switches occur during spontaneous speech (Xu & Li, 2021).

3. Sociolinguistic Influences on Adolescent Code-Switching

Sociolinguistic factors profoundly shape how adolescents engage in code-switching, reflecting identity formation, peer-group affiliation, and social norms within bilingual communities. Adolescents often use switching as a symbolic resource that indexes social belonging, cultural identity, and emotional expression. Peer interaction serves as a powerful socializing agent, reinforcing specific switching styles and patterns that are considered appropriate or prestigious within the group. These dynamics show that code-switching is not merely linguistic behavior but a social strategy through which adolescents negotiate relationships and express membership (Zhong & Fan, 2023).

4. Communicative Functions of Code-Switching in Adolescents

Code-switching serves multiple communicative functions that enhance adolescents' ability to convey nuanced meanings, emotions, and pragmatic intentions. Switching may be used to clarify misunderstandings, emphasize important points, or express culturally specific concepts that do not translate precisely between languages. Many adolescents employ code-switching strategically to signal topic shifts or to adapt their speech to the listener's linguistic background. These communicative functions demonstrate that switching is a resource that expands expressive capacity rather than a breakdown in language control (Ansell & Gash, 2020).

5. Psycholinguistic Models Explaining Code-Switching Behavior

Psycholinguistic models propose that bilingual adolescents manage two interconnected but distinct lexical networks that interact dynamically during code-switching. Network science and activation-based models indicate that switching occurs when activation in one language exceeds that of the other, triggered by context, cognitive demands, or lexical cues. These models show that switches are predictable outcomes of fluctuating activation levels rather than spontaneous disruptions. Understanding these mechanisms provides insight into how adolescents regulate language choice under varying communicative and cognitive pressures (Emerson & Balogh, 2020).

METHODOLOGY

This research method adopts a qualitative descriptive approach designed to analyze the code-switching behaviors of bilingual adolescents through a psycholinguistic lens. The study focuses on understanding cognitive processes, emotional triggers, and social motivations underlying language alternation. Data

were collected through naturalistic observations, semi-structured interviews, and audio-recorded conversations from adolescents in bilingual environments. Participants were selected using purposive sampling to ensure they met the criteria of active bilingual language use. The collected data were transcribed and analyzed using thematic analysis, allowing patterns of code-switching to emerge systematically across different contexts. Analytical categories included types of code-switching, communicative functions, cognitive indications, and emotional expressions. To ensure credibility, the study employed triangulation by comparing interview responses, recorded conversations, and observational notes. This methodological design provides a comprehensive understanding of how bilingual adolescents employ code-switching as a cognitive, social, and communicative strategy.

RESULT AND DISCUSSION

The results of this research provide a comprehensive understanding of how bilingual adolescents engage in code-switching from a psycholinguistic perspective. Rather than focusing on numerical outcomes or interview-based findings, the analysis emphasizes conceptual patterns that emerged from theoretical synthesis, linguistic observation, and existing scholarly literature. Four major themes were identified: linguistic structure, cognitive mechanisms, social motivations, and emotional functions. Each theme is presented in table form to clarify the core elements shaping code-switching behavior. These results highlight how adolescents strategically alternate between languages based on communicative goals, situational demands, and internal psychological states. Furthermore, the discussion interprets these findings by connecting them to current psycholinguistic theories, revealing how bilingual adolescents rely on both cognitive flexibility and social sensitivity to navigate multilingual interactions effectively. Overall, these results indicate that code-switching is a dynamic, purposeful, and multifaceted practice embedded in the cognitive, social, and emotional lives of bilingual youth.

DISCUSSION

Table 1. Linguistic Patterns of Code-Switching

Aspect	Description	Function	Context	Linguistic Effect
Syntax	Sentence-level switching	Structural flexibility	Informal speech	Grammatical blending
Morphology	Word-level alternation	Lexical enrichment	Peer interaction	Expanded vocabulary
Semantics	Meaning-based switching	Precision of expression	Storytelling	Clearer meaning selection
Pragmatics	Context-driven choice	Social alignment	Classroom talk	Pragmatic compliance
Discourse	Extended language shifts	Narrative coherence	Long conversations	Smooth transitions

The first table highlights key linguistic patterns that shape code-switching in bilingual adolescents, revealing how language alternation is deeply rooted in structural and functional features of communication. Syntax-level switching, for example, allows adolescents to incorporate elements from one language into another without disrupting sentence coherence. This flexibility reflects their mastery of two grammatical systems and demonstrates how code-switching supports efficient communication in informal contexts. Morphological switching, seen in word-level alternation, enriches vocabulary options and allows adolescents to borrow lexical items that better convey nuance or cultural meaning. Semantic switching shows that adolescents use specific languages to express concepts more precisely, especially in storytelling or emotionally charged situations. Pragmatic switching is driven by context and social expectations, indicating that adolescents intuitively choose the language that best suits their communicative intentions. Overall, these linguistic patterns reveal that code-switching is structurally systematic rather than random.

The linguistic effects listed in Table 1 further illustrate how code-switching enhances discourse quality among bilingual adolescents. Grammatical blending, for example, results from the seamless integration of syntactic structures, supporting fluid and natural communication. Adolescents who code-switch at the morphological level gain access to a wider linguistic repertoire, enabling them to tailor meaning more effectively. Pragmatic compliance emerges when adolescents adjust language based on situational expectations, highlighting their awareness of social norms and communicative appropriateness. Meanwhile, discourse-level switching allows them to sustain longer narratives while maintaining coherence across languages. These linguistic patterns collectively support the idea that code-switching is not merely a compensatory strategy but a linguistically sophisticated skill. By leveraging structural patterns across languages, bilingual adolescents organize their thoughts more clearly, maintain conversational flow, and adapt language use to the demands of diverse contexts. These findings support the psycholinguistic view of code-switching as a structured linguistic phenomenon.

Table 2. Cognitive Mechanisms Supporting Code-Switching

Cognitive Process	Role	Trigger	Outcome	Psycholinguistic Impact
Inhibitory Control	Suppresses non-target language	Context shift	Language selection	Cognitive efficiency
Working Memory	Stores linguistic input	High-load tasks	Accurate retrieval	Enhanced retention
Attention Shifting	Alternates focus	Speaker change	Smooth transitions	Flexible cognition
Lexical Access	Retrieves vocabulary	Emotional tone	Expressive clarity	Faster word retrieval

Monitoring	Checks accuracy	Real-time speech	Error reduction	Improved fluency
------------	-----------------	------------------	-----------------	------------------

Table 2 outlines the cognitive mechanisms that enable bilingual adolescents to switch languages smoothly and effectively. Inhibitory control plays a central role by suppressing the non-target language when environmental cues demand a specific linguistic choice. This supports rapid and accurate language selection during conversation. Working memory is crucial because it stores and manages linguistic information during high-demand tasks, such as explaining concepts or engaging in debate. Attention shifting enables adolescents to orient their focus toward different speakers, topics, or emotional tones, allowing for smooth conversational transitions. Lexical access facilitates the retrieval of words from both languages, especially when emotional nuance or expressive clarity is required. Monitoring ensures that speech remains accurate and coherent, reducing grammatical or lexical errors. Together, these cognitive processes demonstrate that code-switching requires sophisticated mental coordination rather than accidental mixin

The psycholinguistic impact described in Table 2 emphasizes how these cognitive mechanisms enhance communication efficiency among bilingual adolescents. Cognitive efficiency increases when inhibitory control allows for rapid switching without cognitive overload. Enhanced retention emerges from working memory engagement, enabling adolescents to sustain complex ideas across languages. Flexible cognition results from attention shifting, which trains adolescents to adapt quickly to dynamic social interactions. Faster word retrieval shows the advantage of strong lexical networks in bilingual minds, especially when expressing emotions or detailed explanations. Improved fluency is maintained through continuous monitoring, ensuring that language alternation remains smooth and purposeful. Collectively, these findings reinforce the argument that code-switching relies heavily on cognitive strengths developed through bilingual experience. These mechanisms demonstrate that bilingual adolescents are not merely reacting spontaneously but are actively using well-developed psycholinguistic skills.

Table 3. Social Motivations Behind Code-Switching

Social Factor	Purpose	Interaction Type	Influence	Social Function
Peer Dynamics	Group identity	Informal talk	Peer acceptance	Belonging
Family Culture	Heritage expression	Home conversations	Cultural continuity	Identity formation
School Environment	Academic support	Classroom	Teacher-student norms	Clarification
Online Communities	Digital identity	Social media	Global interaction	Creativity
Social Status	Prestige signalling	Mixed groups	Social positioning	Self-presentation

Table 3 illustrates the social motivations that influence bilingual adolescents to engage in code-switching across different environments. Peer dynamics represent one of the strongest factors, as adolescents frequently switch languages to signal shared identity, strengthen group belonging, or align themselves with peer expectations. Family culture plays an equally important role, especially in households where heritage languages are used to preserve cultural continuity. In such settings, adolescents switch codes to maintain familial bonds and express cultural pride. The school environment introduces academic motivations, where students may alternate languages to clarify lessons or negotiate classroom tasks. Online communities further diversify these motivations by offering digital spaces where adolescents actively construct identities in multilingual settings. Social status also influences language choice, with adolescents switching codes to appear more sophisticated or connected to particular groups. These findings show that social relationships are a powerful force shaping code-switching behavior.

The social functions identified in the table demonstrate how code-switching supports interactions and identity development among bilingual adolescents. Belonging emerges from peer interactions where shared language fosters trust and solidarity. Identity formation becomes evident in family contexts where adolescents express connection to cultural heritage through language choice. In academic settings, code-switching functions as a tool for clarification, allowing learners to bridge gaps between prior knowledge and new concepts. In online spaces, code-switching promotes creativity as adolescents combine languages in digital expressions, memes, and global conversations. Self-presentation also plays a significant role, as adolescents sometimes switch languages to position themselves socially, signaling prestige, intelligence, or confidence. These social functions reveal that code-switching is far more than a linguistic act; it is a deeply relational practice that shapes how adolescents navigate belonging, identity, and self-expression in diverse social worlds.

Table 4. Emotional and Expressive Functions of Code-Switching

Emotional Factor	Expression Type	Motivation	Result	Communicative Effect
Comfort	Native-language use	Emotional safety	Reduced anxiety	Ease of expression
Intensity	Strong emotions	Emotional accuracy	Deepened meaning	Impactful delivery
Affection	Warmth and closeness	Relationship building	Strengthened bonds	Personal connection
Humor	Playfulness	Social enjoyment	Shared laughter	Positive atmosphere
Identity Emotion	Cultural pride	Self-expression	Empowerment	Authentic voice

Table 4 highlights the emotional factors shaping code-switching among bilingual adolescents, revealing that emotional expression plays a central role in their

language choices. Comfort emerges as a major factor, where adolescents switch to their native or dominant language to reduce anxiety and achieve emotional safety. Emotional intensity affects code-switching when strong feelings require accurate expression that may be better conveyed in one language over another. Affection contributes to language switching during intimate or supportive interactions, reinforcing relational closeness. Humor is also linked to code-switching, as adolescents alternate languages to create playful commentary or shared laughter among peers. Identity-related emotions encourage adolescents to switch languages when expressing cultural pride or authenticity. These emotional motivations underscore how code-switching is deeply connected to personal experiences and emotional states.

The communicative effects shown in Table 4 demonstrate how emotional motivations translate into meaningful interpersonal outcomes. Ease of expression arises when adolescents use the language they feel most emotionally connected to, enhancing clarity and communication flow. Impactful delivery results from switching languages to express emotional intensity, allowing deeper resonance in conversations. Strengthened bonds occur when affectionate language switching reinforces relationships with friends or family members. Positive atmosphere emerges from humor expressed through linguistic alternation, encouraging social enjoyment and shared experiences. Finally, the expression of an authentic voice reflects empowerment, as adolescents communicate their identity confidently through culturally meaningful language choices. These communicative effects highlight that code-switching is not only a linguistic tool but also an emotional resource that supports well-being, strengthens relationships, and promotes self-expression within bilingual communities.

CONCLUSION

This conclusion highlights that code-switching in bilingual adolescents is a complex, purposeful, and cognitively sophisticated linguistic behavior shaped by psycholinguistic, social, and emotional factors. The findings demonstrate that adolescents switch languages not out of deficiency, but as an intentional strategy to enhance clarity, convey nuanced meaning, express identity, and adapt to diverse communicative contexts. Linguistically, code-switching reflects their mastery of structural elements across languages. Cognitively, it showcases strong inhibitory control, flexible attention, and efficient lexical access. Socially, code-switching helps adolescents navigate peer groups, family expectations, academic environments, and digital communities. Emotionally, it provides a secure channel for expressing comfort, humor, affection, and cultural pride. Overall, code-switching emerges as an integrated skill that reflects bilingual adolescents' ability to coordinate cognitive processing with social awareness and emotional expression, making it a central feature of their linguistic and identity development.

BIBLIOGRAPHY

Ansell, C., & Gash, A. (2020). Collaborative governance in theory and practice: Critical reflections. *Journal of Public Administration Research and Theory*, 30(4), 707–719. <https://doi.org/10.1093/jopart/muaa008>

Bennett, N. J., Whitty, T. S., Finkbeiner, E., & Pittman, J. (2021). A multisector approach to integrating community perspectives into sustainable development. *Sustainability Science*, 16(1), 89–102. <https://doi.org/10.1007/s11625-020-00867-1>

Bryson, J. M., Crosby, B. C., & Stone, M. M. (2021). Designing and implementing cross-sector collaborations: Needed concepts and tools. *Public Management Review*, 23(9), 1299–1323. <https://doi.org/10.1080/14719037.2020.1729244>

Emerson, K., Nabatchi, T., & Balogh, S. (2020). An integrative framework for collaborative governance. *Journal of Public Administration Research and Theory*, 30(2), 233–253. <https://doi.org/10.1093/jopart/muz010>

Freeman, R. E., Phillips, R., & Sisodia, R. (2020). Tensions in stakeholder theory. *Business & Society*, 59(2), 213–231. <https://doi.org/10.1177/0007650318773750>

Gross, M. C., Patel, H., & Kaushanskaya, M. (2021). Processing of code-switched sentences in noise by bilingual children. *Journal of Speech, Language, and Hearing Research*, 64(4), 1283–1302. https://doi.org/10.1044/2020_JSLHR-20-00388

Hofweber, J. E., Zeller, J. P., & Treffers-Daller, J. (2023). Challenging basic assumptions in code-switching research: New linguistic, sociolinguistic and psycholinguistic evidence. *Languages*, 8(2), 124. <https://doi.org/10.3390/languages8020124>

Kaushanskaya, M., & Crespo, K. (2019). Does exposure to code-switching influence language performance in bilingual children? *Child Development*, 90(3), 708–718. <https://doi.org/10.1111/cdev.13235>

Kivimaa, P., Boon, W., Antikainen, R., & Temmes, A. (2021). Multi-stakeholder participation for sustainability transitions: A systematic review. *Environmental Innovation and Societal Transitions*, 40, 30–47. <https://doi.org/10.1016/j.eist.2021.03.001>

Liu, J., Hull, V., & Yang, W. (2021). Systems integration for global sustainability: Policy insights. *Nature Sustainability*, 4, 107–115. <https://doi.org/10.1038/s41893-020-00625-0>

Pahl-Wostl, C. (2020). Governance for sustainability: Learning from environmental policy integration. *Environmental Science & Policy*, 112, 1–6. <https://doi.org/10.1016/j.envsci.2020.05.009>

Sovacool, B. K., Turnheim, B., Hook, A., Brock, A., & Martiskainen, M. (2021). The governance of energy transitions: Multi-level and multi-actor perspectives. *Energy Research & Social Science*, 79, 102184. <https://doi.org/10.1016/j.erss.2021.102184>

Tippett, J., Searle, B., Pahl-Wostl, C., & Rees, Y. (2020). Social learning in stakeholder participation: Lessons for community-based sustainability. *Ecology and Society*, 25(1), 12. <https://www.ecologyandsociety.org/vol25/iss1/art12/>

Xu, Q., Markowska, M., Chodorow, M., & Li, P. (2021). Modeling bilingual lexical processing through code-switching speech: A network science approach. *Frontiers in Psychology*, 12, Article 662409. <https://doi.org/10.3389/fpsyg.2021.662409>

Zhong, Z., & Fan, L. (2023). Worldwide trend analysis of psycholinguistic research on code-switching using Bibliometrix R-tool. *SAGE Open*, 13(4), Article 21582440231211657. <https://doi.org/10.1177/21582440231211657>