IOSR Journal of Humanities and Social Science (IOSR-JHSS)
Volume 30, Issue 10, Series 8 (October, 2025) 30-35
e-ISSN: 2279-0837, p-ISSN: 2279-0845.
www.iosrjournals.org

Switching Without Slipping: How Indian Teens Manage Three Or More Languages

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Abstract
Most research on bilingualism has examined Western bilinguals, yet adolescents in India routinely use three or four languages every day. This study was designed to explore how multilingual teenagers in Hyderabad experience and describe code-switching, and what their accounts suggest about cognitive control in the bilingual brain. Twelve students aged 15–18, who spoke Telugu, English, and Hindi or Sanskrit, were interviewed, and a think-aloud picture-description task with forced language switches was completed by each of them. Responses were audio-recorded, transcribed, and analysed using reflexive thematic analysis, with codes drawn both from the data and from the Adaptive Control Hypothesis. Four themes were identified: switching felt automatic among friends (10 of 12 participants), word-searching triggered many switches (9 of 12), switches were adjusted to the listener (12 of 12), and slips of the wrong language occurred under stress (8 of 12). Self-rated effort was lowest among friends (mean 1.6 on a 5-point scale) and highest at school (mean 3.8), where a single language was expected. These accounts were interpreted as consistent with context-dependent control rather than constant suppression of the unused language. It was concluded that code-switching should be treated as a skilled act of cognitive control, and that classroom practice should allow strategic switching instead of penalising it.

I. Introduction

1.1 Background

A teenager in Hyderabad may speak Telugu with her grandmother, English in a physics class, Hindi with a friend from another state, and recite Sanskrit verses at a family ceremony, all before dinner. This daily juggling is shaped by policy and by place. India's National Education Policy 2020 continues the three-language formula with more flexibility, requires that at least two of the three languages be native to India, and offers Sanskrit as an option at every level (PRS Legislative Research, 2020). Hyderabad adds a social layer. Telugu, English, and the mixed variety popularly called Tenglish are all part of everyday speech in the city (Dutta & Rajeswari, 2015).

Several terms need defining. *Code-switching* is the alternation between languages within a conversation or sentence, and *code-mixing* is often used for switches inside a single utterance; here the two are treated together. Switches can happen between sentences (inter-sentential), within a sentence (intra-sentential), or inside a single word. A Telugu–English example of the last type is *classlo*, in which the English word *class* takes the Telugu ending *-lo* (Gundapu & Mamidi, 2020). *Cognitive control* means the mental processes that keep goals in mind, resolve competition between alternatives, and suppress what is irrelevant. Everyday switching matters for the brain because it is a natural, repeated exercise of these processes.

1.2 Existing Research

Bilingual speakers do not keep their languages in sealed compartments. Evidence from reading, listening, and speech planning shows that both languages stay active even when only one is being used (Kroll et al., 2014; Kroll et al., 2015). Managing this competition is thought to draw on executive control networks centred in the frontal lobes, and lifelong management of two languages is argued to reshape these networks (Bialystok et al., 2012). Bilingualism has therefore been described as an experience that changes the brain, a form of neuroplasticity (Bialystok, 2017). Neuroimaging work has mapped a language-control network that includes prefrontal and anterior cingulate regions, subcortical structures, and the cerebellum, and has shown that this network adapts to the demands of a bilingual's environment (Abutalebi & Green, 2016).

1.3 Research Gap

Three gaps motivated this study. First, whether bilingualism produces a general cognitive advantage remains contested, and a large meta-analysis of adult studies found little evidence for a broad executive-functioning advantage (Lehtonen et al., 2018). Second, most studies rely on reaction-time tasks and rarely ask speakers what switching feels like from the inside. Qualitative work on this question is emerging; for example, a thematic analysis of bilingual speakers' code-switching in Indonesia linked executive control, working memory, and metacognitive awareness to the timing and form of switches (Kastria et al., 2026). Third, the people studied

are mostly Western bilinguals, so Indian trilingual teenagers, who live in dense multilingual settings, remain under-studied.

1.4 Research Question and Objectives

The Adaptive Control Hypothesis (ACH) was adopted as the guiding framework. It proposes that the control processes a bilingual relies on depend on the interactional context: a single-language context, a dual-language context in which each language is used with different people, and a dense code-switching context in which both languages are mixed freely (Green & Abutalebi, 2013). The processes it names include goal maintenance, interference control, selective response inhibition, and opportunistic planning.

The central research question was: *How do multilingual Indian adolescents experience and describe code-switching, and what do their accounts suggest about cognitive control?* Three sub-questions followed:

1. **When** and **why** do the teenagers switch languages?
2. **How effortful** does switching feel, and does effort differ across contexts?
3. **How** do they keep the unwanted language from intruding?

The study aimed to describe the switching experience of an under-represented population and to map participants' accounts onto ACH control processes.

II. Methodology

2.1 Participants

I recruited 12 students (7 girls and 5 boys) aged 15–18 (mean age 16.4 years) from three schools in Hyderabad, India, through school coordinators who invited students in grades 10 to 12. Every participant spoke Telugu as a first language plus English and either Hindi (8 students) or Sanskrit (4 students). I screened language history with the Language Experience and Proficiency Questionnaire (LEAP-Q; Marian et al., 2007), adapting its language list to Telugu, English, Hindi, and Sanskrit. All participants rated their Telugu and English proficiency at 7 or higher out of 10. The sample size was chosen on the evidence that, in fairly homogeneous samples, interview studies usually reach thematic saturation within about 9–17 interviews (Hennink & Kaiser, 2022). My sample was homogeneous in age, city, and language background, so this range suited it. Participants are identified by pseudonyms (P1–P12) throughout.

2.2 Research Design

I used a qualitative, interpretive design with two parts: a semi-structured interview and a think-aloud picture-description task with forced switches. A qualitative design fits a question about *experience*, because it lets participants explain in their own words what switching feels like. The think-aloud method gives access to thinking during language-based tasks, and it works best when interpreted through a qualitative lens and when participants are treated as quasi-researchers (Charters, 2003). Combining the two parts allowed me to compare what participants did during the task with what they said about their everyday switching.

2.3 Data Collection

I built an interview guide covering the contexts in which participants switch, triggers for switching, how effortful it feels, slips into the wrong language, and the emotions involved. I followed the stepwise design recommended for semi-structured interviews, which includes piloting and refining the guide (DeJonckheere & Vaughn, 2019). Two to three students piloted the guide and task, and I revised unclear questions and the picture set before the main data collection. For the think-aloud task, each participant described pictures aloud while I instructed them to change language at set points (for example, Telugu to English to Hindi) and to say what they were thinking as they did so.

Interviews took place in a quiet room at each participant's school between June and July 2025, lasted about 40 minutes (range 32–55), and were audio-recorded with permission. At the end of each interview, I asked participants to rate, from 1 (no effort) to 5 (very effortful), how much effort switching languages took in each of four contexts: home, school, friends, and religious or Sanskrit settings. I transcribed each recording and translated Telugu and Hindi segments into English, keeping switched words in their original form.

Because participants were minors, I obtained written parental consent and written assent from each student before any data were collected, following the ICMR national ethical guidelines for research involving children (Indian Council of Medical Research [ICMR], 2017), including its guidance on school-based research. Participation was voluntary, participants could stop at any time, and all names were replaced with pseudonyms. The principal of each school approved the study.

2.4 Data Analysis

I analysed the transcripts with reflexive thematic analysis, following the six phases described by Braun and Clarke (2006): familiarisation, generating initial codes, searching for themes, reviewing themes, defining and

naming themes, and writing up. Codes were generated inductively from participants' words, and a second set of deductive codes was drawn from ACH control processes (such as goal maintenance and interference control). I also coded each reported switch by type: inter-sentential, intra-sentential, or morpheme-level. After coding, I compared themes across home, school, peer, and religious contexts and mapped each context onto the ACH categories of single-language, dual-language, and dense code-switching.

III. Results

3.1 Primary Findings

Four themes described when, why, and how participants switched. Table 1 summarises them, and each is described below. Counts show how many of the 12 participants raised the theme.

Table 1. Themes, contexts, and linked control processes

Theme	What participants described	Most common context	ACH process it suggests	Participants
1. Switching is automatic	Switching happened without deciding to, especially with friends	Peer group	Opportunistic planning	10/12
2. Searching for the word	A switch occurred when the word in the current language did not come	Home, school	Interference control	9/12
3. Switching to fit the listener	Language was chosen to match the person being addressed	School, home	Goal maintenance	12/12
4. Slips under stress	The wrong language intruded when tired, anxious, or hurried	School exams, speaking in public	Selective response inhibition	8/12

In **Theme 1**, participants described switching as something that "just happens" with friends. P4 said, "With my friends I don't decide anything. It just comes out, half Telugu, half English, and nobody notices." In **Theme 2**, participants said that a missing word, more often than a deliberate choice, triggered a switch. P7 explained, "At home I'm talking to Amma in Telugu, but for 'microscope' I don't have a Telugu word, so I just say it in English." In **Theme 3**, participants matched language to listener. P2 described speaking only Telugu to her grandfather (*thatha*) but, when explaining homework to a classmate, using "English with a little Hindi." In **Theme 4**, wrong-language slips and tip-of-the-tongue moments increased under stress. P9 reported, "When I'm tired or in an exam, a Hindi word comes out in the middle of a Telugu sentence and I don't even know where it came from." Across the interviews, 142 switches were coded: 96 (68%) were intra-sentential, 37 (26%) were inter-sentential, and 9 (6%) involved morpheme-level mixing of the *classlo* type.

3.2 Comparisons Across Contexts

Switching experiences differed by context. At home, Telugu dominated and switches were mostly triggered by English or Hindi words with no easy Telugu equivalent, which resembles a dual-language context. At school, English was the expected language and participants described switching as something to be monitored or hidden, a single-language context. With friends, Telugu and English mixed freely, and participants reported little effort, which corresponds to dense code-switching. In religious or Sanskrit settings, participants reported a strongly bounded single-language mode, with little mixing and close attention to correct pronunciation. Table 2 shows the pattern.

Table 2. Reported effort of switching by context

Context	ACH interactional type	Typical languages	Reported effort (mean, 1–5 scale)
Home	Dual-language	Telugu (+ English/Hindi words)	2.1
School	Single-language	English	3.8

Friends	Dense code-switching	Telugu–English mix	1.6
Religious / Sanskrit	Single-language	Sanskrit, Telugu	3.2

3.3 Spoken Versus Digital and Third-Language Switching

Participants described digital switching on WhatsApp and Instagram as freer than spoken switching, because there was time to choose words and fewer social consequences. Digital switches were linked to identity, group belonging, and emotion, for example using a Telugu phrase to express closeness. P11 said, "On WhatsApp I can think for a second, so I pick the word I like. If I want to say I care, I write it in Telugu, because English feels too cold." Switches into Hindi or Sanskrit differed from Telugu–English switches: Hindi was mainly used for specific friends or media, and Sanskrit was tied to ritual and formal registers, with Hindi switches usually single words or film phrases, and Sanskrit appearing as fixed verses and phrases that none of the four participants who used it mixed mid-sentence.

3.4 Key and Unexpected Findings

Three findings stood out. First, wrong-language intrusions occurred even among fluent participants, most often when the intended word was a name or a number. P6, asked to count objects in a picture in English, said "*okati*, two, three" (*okati* means "one" in Telugu) before correcting himself. Second, participants described tip-of-the-tongue moments in which the word surfaced in another language first, which showed that both languages were available at the same moment. Third, effort was greatest when participants were forced to stay in one language, not when they were free to switch. In the think-aloud task, 9 of 12 participants mixed languages at least once even when asked to stay in one. One result did not fit the themes above: P5 and P10 reported that switching at school felt easy (both rated it 2), because they also used English with friends there, so a school setting did not always mean a single-language context. The three participants with the highest self-rated English proficiency (9 or 10 out of 10) slipped about as often as the others, which suggests that high proficiency did not remove intrusions.

IV. Discussion and Conclusion

4.1 Interpretation

The accounts map neatly onto the control processes proposed by ACH, and they suggest that participants relied on different processes in different settings. Reports of automatic switching among friends fit opportunistic planning, in which speakers use whichever language offers the best word and both languages cooperate instead of competing (Green & Abutalebi, 2013). Matching language to listener points to goal maintenance, since the speaker must hold the current conversational goal in mind. Word-searching switches and slips under stress point to interference control and selective response inhibition, the processes needed when the unwanted language wins the competition. These processes have been linked to a control network that includes the anterior cingulate and pre-supplementary motor areas, prefrontal cortex, subcortical structures, and the cerebellum (Abutalebi & Green, 2016). Self-report cannot show that these regions were active, but it shows which demands participants felt and gives a testable map for future neuroimaging work.

The pattern of effort supports a further inference. Dense code-switchers reported less effort, not more. This suggests that habitual mixing does not strain control; it replaces constant suppression with a cooperative mode in which switching is part of the speaker's skill. Effort rose when a single language was enforced, which is when suppression is most needed.

4.2 Comparison With Previous Studies

These findings add a view from inside the experience to experimental work showing that the frequency and context of switching shape task-switching performance (Hartanto & Yang, 2016). They also fit qualitative work linking executive control, working memory, and metacognitive awareness to when and how bilinguals switch (Kastria et al., 2026). The reports of both languages being active at once agree with the cross-language activation described across the literature (Kroll et al., 2014). The findings do not settle the bilingual-advantage debate. The meta-analytic evidence for a general advantage in adults is weak (Lehtonen et al., 2018), and nothing here contradicts it. What they challenge is the assumption that a simple advantage-or-no-advantage question captures bilingual cognition. These teenagers' experience points to adaptation: control that is tuned to the context in which each language is used (Bialystok, 2017).

The digital findings agree with work showing that adolescents use code-switching in online communication to signal identity, group membership, and emotion (Maziyah et al., 2025). Switching therefore serves social goals as much as linguistic ones.

4.3 Practical Implications

Schools should stop treating switching as a deficit. Teachers can permit strategic switching during discussion, brainstorming, and note-taking, and reserve single-language tasks for moments when they are needed, with the understanding that these will feel more effortful. Families can be reassured that mixing languages at home reflects skill, not confusion. There is also a lifespan reason to value multilingualism. A study of patients in Hyderabad found that bilingual patients developed dementia on average four and a half years later than monolingual patients, independent of education, literacy, and immigration (Alladi et al., 2013). A city in which most children grow up using several languages has a cognitive resource that deserves protection.

4.4 Limitations and Future Research

This study has clear limits. Self-report depends on memory and on how well participants can describe fast, automatic processes, a known weakness of bilingualism measures that rely on self-ratings (Marian & Hayakawa, 2021). The sample was small and urban, so the results cannot be generalised to rural India. Behavioural effects of bilingualism in young adults are also inconsistent (Bialystok, 2017), so the links drawn here to control processes are interpretations and not measurements. A stronger follow-up would add a simple switch-cost reaction-time task to the interview, recruit a larger and more varied sample, and test directly whether context predicts both reported effort and measured switching costs.

4.5 Conclusion

Multilingual Indian teenagers do not manage their languages by suppressing one and speaking the other. They tune their control to the setting, switching freely where freedom is cheap and holding firm where a single language is demanded. Code-switching is control in action, not a failure of it. Research on bilingualism should therefore include speakers like these, and schools should build on the skill they already have.

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