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Understanding How Cognitive Styles Shape Instructional Strategies Among English Language Teachers

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Abstract

This paper investigates the impact of elementary school English teachers' cognitive styles—left, right, and middle brain utilization—on their teaching methodologies and interactions with students at grade 6. In the quantitative phase, eighty English teachers from public schools participated in the Cognitive Style Questionnaire. The analysis of the findings led to FGDs with sixth-grade students to further examine the effects of the teaching strategies. The study found that 45% of the teachers are middle-brained, 37.5% are moderately left-brained, and 7.5% are strongly left-brained, encompassing both male and female educators. Additionally, the research indicated that early-career teachers tend to demonstrate a higher dominance of left-brain characteristics, implying a reliance on traditional methods, as well as a structured, rule-based approach to teaching that offers limited opportunities for speaking practice, as reported. The instruction of the English language tends to undervalue creativity, intuition, and flexibility due to the predominance of left-brain-oriented teachers.

Keywords: Cognitive Style, English Language Teaching, Split-Brain Theory, Public Schools, Male and Female Educator.



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Introduction

Understanding the cognitive styles of teachers is significant to accelerate students' engagement and learning of higher-order thinking skills—creative, critical, collaborative and problem-solving skills (Evans & Waring, 2011). Cognitive style (CSs), defined as an individual's habitual mode of processing information, influences the way teachers organize content, interact with learners, and employ pedagogical strategies (Zhang, 2017). This is especially significant in English language teaching, where both analytical skills (e.g., grammar instruction) and creative approaches (e.g., storytelling, oral communication, etc.) are essential to effective instruction. According to the views of brain-based experts, people have a tendency to favour one hemisphere of the brain over the other, which may affect how they teach. While right-brain dominance supports holistic, visual, and intuitive approaches; left-brain dominance is frequently linked to linear, logical, and structured teaching strategies (McGilchrist, 2009). Moreover, teachers who are conscious of their CSs are more likely to use a wider variety of teaching techniques, which improves student engagement and comprehension (Evans & Waring, 2011).

Teaching English at the elementary school level presents challenges that necessitate adaptable, varied, and developmentally appropriate CSs and teaching methods. Basic language abilities and skills, including phonetic decoding, vocabulary acquisition, reading fluency, and writing expression, must be developed by students during the elementary education cycle. According to Borg (2015), the CSs and pedagogical beliefs of teachers significantly impact the effectiveness of their lessons. Teachers who are conscious of their CSs are better able to adapt their teaching methods to the demands of their students, particularly in classes with a diverse student body in terms of language and culture. Right-brain CS dominance teachers favour creative, intuitive, communicative tactics which lead to student-centred teaching. Whereas left-brain dominated CS teachers support rational and structured ways that may lead to the use of the grammar translation method (GTM) (McCarthy, 2010; Richards & Farrell, 2020). These inclinations are consistent with CSs, which are individual variations in the way that information is interpreted and processed, and have a direct influence on instructional decision-making. CS influences multiple aspects of ELT, from lesson design to evaluation. In order to develop more flexible and successful teaching methods, this study looks at how the CSs of English language instructors influence their instructional strategies.

Carabantes (2025) emphasises the critical role of sociocultural context in the development of English language teaching materials, arguing that materials should be designed not as neutral tools but as culturally and socially mediated resources that reflect learners' and teachers' specific environments. Drawing on Activity Theory, Carabantes presents a framework that considers the complex interactions among the community, institutional rules, and available resources, enabling materials developers to create more relevant and effective learning materials, especially in English for Academic Purposes. His work highlights the limitations of commercial textbooks and advocates for the professionalisation of materials development as an essential teacher skill, encouraging educators to systematically adapt or design materials that respond to their unique teaching contexts (Carabantes, 2025). This approach aligns with broader trends in ELT research that call for context-sensitive and culturally responsive pedagogies.

These difficulties are made worse in multilingual settings, such as Pakistani schools, by socioeconomic inequality and differing degrees of language exposure. Since teachers frequently work with students who have little exposure to English at home, therefore, instructional process must be flexible and responsive. Recent research highlights the necessity for learner-centred,

cognitively flexible, culturally responsive instruction (Richards & Farrell, 2020). Additionally, it has been demonstrated that using tailored instruction according to cognitive and learning styles improves language acquisition results (Richards & Farrell, 2020). Therefore, it is both timely and pedagogically beneficial to look into how the cognitive styles of English teachers relate to their teaching methods.

Purpose of the Study

The primary purpose of this study is to identify the brain orientation—left, right, or middle—used by teachers during the instructional process and to examine the English language teaching strategies they employ at the elementary level. Understanding this relationship is essential because cognitive orientation significantly influences teaching style, lesson planning, and interaction with students (McGilchrist, 2009). The study also aims to explore how these brain orientations affect students' language learning experiences and outcomes. By identifying specific brain orientations and linking them to observable teaching strategies, the research would contribute to more personalised teacher training and curriculum development. Moreover, as elementary education forms the foundation for lifelong learning, ensuring effective and cognitively aligned strategies in teaching English can positively influence students' academic foundations (Marzano, 2007). This study, therefore, seeks to bridge the gap between cognitive neuroscience and practical pedagogy in English language instruction. Moreover, in Pakistan, English is not just a subject; it is the medium of instruction in several classrooms, and the strategies used to teach affect literacy development, academic confidence, and future academic success. If teachers' brain orientations are aligned or misaligned with their teaching strategies, it can influence students' ability to grasp concepts, retain vocabulary, and apply language skills across subjects (Marzano, 2007).

Objectives of the study

1. Determine the cognitive style (left, right and middle brain) used by English teachers in teaching English at grade 6.
2. Identify how cognitive styles influence the teaching strategies used by teachers in teaching English language at elementary grades.

Theoretical Framework

The theoretical foundation of this study is based on two influential psychological and educational theories: Split-Brain Theory by Roger Sperry (1968) and Multiple Intelligences Theory by Howard Gardner (1983). These theories provide critical insight into how cognitive differences shape teaching practices and instructional strategies in the classroom, especially in the domain of English language teaching.

Split-Brain Theory (Sperry, 1968): The Split-Brain Theory proposes that the human brain is divided into two hemispheres, each responsible for different cognitive functions. The left hemisphere is associated with logical reasoning, language processing, analytical thinking, and sequential tasks. In contrast, the right hemisphere is responsible for creativity, spatial awareness, emotional expression, and holistic thinking. Sperry's also revealed that each hemisphere operates relatively independently and influences behaviour and cognition differently. In the context of English language instruction, this theory helps to explain why some teachers may gravitate toward structured grammar instruction (left-brain dominance), while others may prefer storytelling, creative writing, and visual aids (right-brain dominance). Teachers who show a balance between both hemispheres, often termed "middle-brained," are likely to integrate both analytical and creative strategies, resulting in a more holistic teaching style. This framework enables researchers

to categorize teachers based on their cognitive orientation and observe how these preferences manifest in classroom strategies and student engagement.

Multiple Intelligences Theory (Gardner, 1983): Howard Gardner's Multiple Intelligences Theory expands the notion of intelligence beyond traditional linguistic and logical-mathematical abilities. He proposed that humans possess at least eight distinct intelligences, including linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalistic intelligences (Gardner, 1983). According to Gardner, effective teaching involves recognising these diverse intelligences and adapting instructional strategies to cater to different learner profiles. This theory supports the idea that English teachers should not rely solely on one teaching method, such as textbook instruction or rote learning. Instead, they should use a variety of strategies such as music, group discussions, storytelling, physical activities, and visual aids to engage students with different cognitive strengths. The theory aligns with the Split-Brain Theory by reinforcing the idea that both logical and creative domains of the brain should be activated during teaching for deeper learning outcomes.

Conceptual Framework

The conceptual framework for this study outlines the relationships between the variables involved in examining the impact of brain orientation on teaching strategies and students' perceptions. The framework incorporates independent, dependent, and mediating variables to guide the study's design and analysis.

- Independent Variable: Brain Orientation (Left, Right, Middle)
- Dependent Variables: Teaching strategies, Student perceptions
- Mediating Variables: Gender, Experience, School environment

Research Methodology and Design

The research methodology outlines how the study will be conducted, including the paradigm, design, population and sample, and data collection methods. In this study, a mixed-methods approach is used, combining both descriptive and exploratory designs to address the research objectives. The mixed-methods paradigm combines both quantitative and qualitative research approaches, allowing for a more comprehensive understanding of the research problem by integrating numerical data with narrative insights (Creswell, 2014). This paradigm is particularly useful when exploring complex phenomena, such as the relationship between teachers' cognitive styles (brain orientation) and the instructional strategies they employ, as well as students' perceptions of those strategies. Quantitative data can provide statistical evidence of patterns and relationships, while qualitative data offers a deeper, contextual understanding of how and why those patterns exist. For instance, in this study, quantitative methods measured the teachers' CSs using standardised scales, while qualitative methods involved FGDs with Grade 6 students to gain insights into their perceptions of the teaching methods. The integration of these methods enriches the interpretation of results and allows for triangulation, increasing the reliability of the findings (Krueger & Casey, 2015).

Research Instruments

The Teaching Cognitive Style Scale was used to identify the brain orientation (left, right, or middle) of teachers. The scale measured cognitive preferences in terms of logical, creative, and balanced thinking, offering a reliable classification of each teacher's dominant CSs. This scale was developed by Crane (1989), consisting of 42 statements that were scored awarding one point for

each time answered “A” for questions: 1, 2, 3, 7, 8, 9, 13, 14, 15, 19, 20, 21; and awarding one point for each time answered “B” for questions: 4, 5, 6, 10, 11, 12, 16, 17, 18. By adding entire points, CSs were determined as provided by Crane (1989): 0–4 strong left brain, 5–8 moderate left brain, 9–13 middle brain, 14–16 moderate right brain, 17–21 strong right brain.

By using FGDs with Grade 6 students, the study explored students' perceptions and understanding of the effects of CSs in the adaptation of teaching strategies and impacts on learning. FGDs focused on the impact of teaching strategy on students' engagement, interaction in the classroom and barriers to learning English. We recorded, transcribed, refined, member member-checked the qualitative data to draw findings and themes related to the major variables of the study.

Population and Sample

The population of the study were teachers teaching English and students studying in grade six in 8 Federal Government (FG) schools of Rawalpindi. The majority of students belonged to middle-class families because well-to-do parents sent their children to Army Public Schools. A total of 80 English language teachers (both male and female) were selected by using a purposive sampling technique. This technique is useful in mixed-methods studies, where in-depth information from a targeted group is more valuable than generalised data from a large population (Creswell, 2014). The Grade 6 students participated in Two FGDs to understand their perceptions of the teaching strategies used in the English classroom. Three high achievers, three average and Three low achievers participated in One FGD. Furthermore, the students' feedback helped to establish the connection between teaching strategies and student engagement or learning outcomes.

Quantitative analysis

Table 1: *Analysis about the use of right and left brain by the English teachers teaching English at grade 6 (N-80)*

S.NO	Cognitive Style	Frequency	%
1	0-4 strong left brain	06	7.5
2	5-8 moderate left brain	30	37.5
3	9-13 middle brain	36	45
4	14-16 moderate right brain	08	10
5	17-21 strong right brain	0	0
Total		80	100

Table 2: Analysis about the use of right and left brain by Male English teachers teaching English at grade 6 (N- 30)

S.NO	Cognitive Style	Frequency	%
1	0-4 strong left brain	06	20
2	5-8 moderate left brain	12	40
3	9-13 middle brain	10	33.3
4	14-16 moderate right brain	02	6.7
5	17-21 strong right brain	0	0
Total		30	100

Table 3: Analysis about the use of right and left brain by Female English teachers teaching English at grade 6 (N-50)

S. NO	Cognitive Style	Frequency	%
1	0-4 strong left brain	0	0.0
2	5-8 moderate left brain	18	36.0
3	9-13 middle brain	26	52.0
4	14-16 moderate right brain	06	12.0
5	17-21 strong right brain	0	0.0
Total		50	100

Table 4: Analysis about the use of left and right brain by English teachers having varying Years of teaching experience (N-80)

S. No	Cognitive Style	1-5 Years Frequency (%)	6-10 Y Frequency (%)	11-15 Y Frequency (%)	16 Y & above Frequency (%)
1	0-4 strong left brain	2 (12.5%)	2 9.1%	2 (5%)	0 (0%)
2	5-8 moderate left brain	6 (37.5%)	8 (36.4%)	16 (40%)	0 (0%)
3	9-13 middle brain	6 (37.5%)	12 (54.5%)	16 (40%)	2 (100%)
4	14-16 moderate right brain	2 (12.5%)	0 (0%)	6 (15%)	0 (0%)
5	17-21 strong right brain	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Total		16 (20%)	22 (27.5%)	40 (50%)	2 (2.5%)

Table 5: Analysis about the use of right brain by Male English teachers having varying Years of teaching experience (N=30)

S. NO	Cognitive Style	1-5 Years Frequency (%)	6-10 Y Frequency (%)	11-15 Y Frequency (%)	16 Y & above Frequency (%)
1	0-4 strong left brain	2 (50%)	2 (25%)	2 (12.5%)	0 (0%)
2	5-8 moderate left brain	2 (50%)	4 (50%)	6 (37.5%)	0 (0%)
3	9-13 middle brain	0 (0%)	2 (25%)	6 (37.5%)	2 (100%)
4	14-16 moderate right brain	0 (0%)	0 (0%)	2 (12.5%)	0 (0%)
5	17-21 strong right brain	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Total		4 (13.3%)	8 (26.7%)	16 (53.3%)	2 (6.7%)

Table 6: Analysis about the use of right brain by Female English teachers having varying Years of teaching experience (N=50)

S. NO	Cognitive Style	1-5 Years Frequency (%)	6-10 Y Frequency (%)	11-15 Y Frequency (%)	16 Y & above Frequency (%)
1	0-4 strong left brain	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2	5-8 moderate left brain	4 (33.3%)	4 (28.6%)	10 (41.7%)	0 (0%)
3	9-13 middle brain	6 (50%)	10 (71.4%)	10 (41.7%)	0 (0%)
4	14-16 moderate right brain	2 (16.7%)	0 (0%)	4 (16.7%)	0 (0%)
5	17-21 strong right brain	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Total		12 (24%)	14 (28%)	24 (48%)	0 (0%)

Qualitative analysis

A Focused Group Discussion (FGD) is a qualitative research method used to gather in-depth insights from a small group of participants through guided discussions. It allows researchers to explore participants' perceptions, experiences, and opinions on a specific topic in a natural and interactive setting. FGDs are especially useful for understanding how and why people think the way they do (Krueger & Casey, 2015). It was conducted to understand the effectiveness of English teaching methods from the students' point of view. 18 students of Grade 6 from different Schools participated in two FGDs. The moderator ensured active participation, rich discussion about what works for them, what challenges they face, and what they find engaging or discouraging in the classroom while learning English. Analysis is structured as under:

What methods and teaching strategies are used by your English teachers in teaching English?

Six (A, E, J, K, R, I) out of 18 participants in two FGDs responded that the most dominant approach in their classroom “is the grammar-translation method (GTM)”. They explained that “the teacher primarily writes grammar rules on the whiteboard and provides a detailed, step-by-step explanation”. Afterwards, students are required to copy these rules into their notebooks, and they are also asked for written exercises to reinforce their learning. While students acknowledged that this approach offered structure and clarity, however, they also emphasised that it lacked engagement and offered rare speaking opportunities in classroom.

Students B and C pointed out that the teacher usually reads from the textbook and asks comprehension questions. However, they emphasised that GTM remains at the forefront, with little room for oral or creative activities. A larger group (L, M, N, O) described the learning process as routine and highly predictable, with grammar explanation followed by worksheet exercises. This repetitive pattern, they explained, makes the classes monotonous and uninspiring.

A few students (A, B, C, D) viewed that memorising grammar rules help understanding sentence construction; however, it does little to develop actual communicative skills. They shared that their English learning is geared more toward written tests than real-life usage. Similarly, another group (C, G, K, P) noted that this approach often results in a superficial understanding of the language, without fostering the ability to use it in daily interactions.

Although multimedia resources and videos of songs and cartoons were mentioned by Students D and E, however, their use was described as infrequent and sometimes. This highlights a lack of integration of digital creative tools into everyday teaching practices. Students H, I, and K mentioned that their learning mostly centers on memorising vocabulary and essay writing, with minimal collaborative activities. This underscores a traditional, teacher-centred approach as routine practice on the part of teachers.

What challenges do you face in learning English in the classroom?

Five students (J, A, F, K, B) pointed out that their teacher speaks too quickly, making it hard for them to process the material. This rapid pace causes cognitive overload and prevents comprehension, especially for those still developing their foundational language skills.

Students K, C, D, and O emphasised that large class sizes make it difficult for them to ask questions or receive individualised support. This lack of personal attention diminishes their confidence and engagement in the learning process. Student L identified shyness and fear of making mistakes as internal challenges that hinder her from speaking English, suggesting that emotional and psychological barriers play a major role in language acquisition.

Furthermore, a group of students (M, B, C, A) expressed frustration with the heavy focus on reading and writing tasks. They stated a preference for interactive and engaging methods that make learning fun and relatable. Student N, along with many others, agreed that a lack of speaking opportunities is a major concern. Without regular practice, students feel they are not progressing in real-world communication.

Some students noted that the classrooms are noisy and overcrowded, limiting their ability to concentrate. Finally, five students (P, H, A, K, C) wished for more game-based and interactive activities rather than rigid grammar instruction. They believed such changes would enhance both enjoyment and effectiveness in learning English.

What makes your English classes interesting and enjoyable?

Several students shared that their English classes become enjoyable when storytelling, visual media, and interactive methods are employed. Four students (A, E, J, N) specifically mentioned that the use of storytelling and cartoons helped them grasp vocabulary and comprehend lessons in an entertaining way. These tools were especially effective in contextualizing language and sparking interest.

Student B highlighted the role of role-playing, noting that acting out dialogues allowed for greater participation and enhanced speaking skills. Students C and a majority of others praised the use of group work, stating that collaborative discussions helped them learn from their peers and made the class more dynamic.

Student D pointed out the excitement of word games and spelling competitions, which not only added a fun element to learning but also boosted engagement and retention. Student G found that visualising stories and reading narratives improved his ability to remember vocabulary, showing how imagination can play a significant role in language development. Students M, N, O, and P agreed that fun activities helped reduce their fear of speaking and created a positive learning environment. Student P wished for even more frequent role-playing and game-based activities, indicating a strong preference among learners for methods that are engaging, interactive, and relevant.

Students universally acknowledged that stories play a significant role in making English learning more meaningful and effective. Student D shared that stories enable him to visualize situations, making vocabulary easier to understand and recall.

Student N and several others noted that stories expose them to natural conversational patterns, helping them learn how to speak English in real-life contexts. Students O, B, I, and G emphasized that storytelling helps them apply vocabulary in real scenarios, unlike grammar exercises that focus on abstract rule memorization.

Discussion and Conclusions

With differences according to gender and teaching experience, the results provide compelling evidence that teachers' CSs impact their instructional tactics. Sixty % of male teachers are moderately or highly left-brained. Early-career instructors exhibit a greater left-brain dominance, which suggests a dependence on conventional approaches, maybe as a result of training models or early familiarity with inflexible frameworks. This trend indicates a predilection for structured, rule-governed GTM method. The most common instructional method observed amongst these teachers is the GTM with a strong emphasis on grammar rules, written exercises, and limited speaking practice as viewed by students in FGDs. Multimedia tools, such as songs and cartoons, are used rarely by the left-brain teachers. This supports McCarthy's (2010) claim that left-brained people priorities logic, order, and detail when delivering instruction. This structure-dominant pedagogy, though appreciated for its clarity, however, it is critiqued for its repetitive and non-interactive nature, widely ignoring communicative competence and contextual language usage (Richards, & Farrell, 2020).

12% of female instructors and 10% of all teachers exhibit moderate right-brain function which supports the argument that English instruction undervalues creativity, intuition, and adaptability. Few opportunities exist for group work, role-playing, or creative language use. Vocabulary and essay memorisation take precedence over communication-oriented tasks. Female instructors exhibit more balanced brain use, with a modest presence of the right brain and a bigger presence

of the middle brain. This implies that female educators might be more adaptable when it comes to combining organised and innovative teaching methods in the classroom. Evans and Waring (2009) claim that female educators frequently exhibit greater metacognitive awareness, which facilitates transition between analytical and intuitive tactics more skillfully. Because middle-brain teachers, who balance both hemispheric functions, are more likely to vary their teaching strategies because they combine rule-based instruction with communicative and creative activities. This evidence supports findings by Zhang (2017), who notes that middle-brained individuals are better positioned to adapt their teaching based on learners' needs and classroom dynamics.

As teaching experience increases, there is a discernible trend toward cognitive balance and middle-brain usage. Teachers typically shift away from extreme cognitive styles (strong left-brain) toward a more balanced approach as they gain experience. According to Zhang (2017), experience helps teachers become more flexible in their CSs, which enables them to blend creativity and precision. It also emphasises how crucial continuing professional development is to developing well-rounded teaching methods that support the language learning objectives of the twenty-first century.

Fast-paced lessons, large class sizes, lack of personal attention, shyness and fear of making mistakes and a testing product-oriented model of instruction where learning is measured by correct answers rather than communicative performance are the major challenges of left-brained CS teaching. According to Tseng (2021), meaningful language acquisition requires communicative and task-based methods, which are frequently linked to right-brain characteristics. Thus, raising knowledge and support for right-brain teaching strategies may improve students' fluency and engagement. Moreover, minimum real-life language usage and overemphasis on 'form' inhibit natural language acquisition. According to Zhang (2017), right-and middle-brain teachers are better able to incorporate communicative methods that activate deeper language processing and contextual understanding.

Students reported that the use of multimedia tools may enhance creativity and motivation in language learning, but they are not integrated into the core pedagogy of left-brain cognitive style teachers. As Littlewood (2004) notes, effective language learning requires meaningful engagement with multimodal content in the digital age. Moreover, when the multimodal content is supported by game-based activities, story reenactments, and group work; it may generate interest, enthusiasm and also be linguistically productive.

Despite their frustrations, students identified specific activities that significantly enhanced their engagement and learning outcomes. These included: Storytelling, Role-play and acting, Group discussions, Spelling games, Multimedia (songs, cartoons). Bruner (1990) emphasizes that storytelling is a powerful educational tool which provides narrative coherence, engages imagination, and facilitates vocabulary retention. This finding supports Evans and Waring (2009) argument that communicative competence cannot develop in the absence of contextualized language use. According to multiple students, role-playing allows students to transition from focused-production to function-based communication by simulating real-life situations and reflecting actual language use (Tseng, 2021).

Conflict of Interest

The authors showed no conflict of interest.

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