

**THE RELATIONSHIP BETWEEN L1-L2
PROFICIENCY AND ITS EFFECT ON
COGNITIVE FLEXIBILITY AND ACADEMIC
SPEAKING SKILLS OF BILINGUAL
LEARNERS**

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EFFECT ON COGNITIVE FLEXIBILITY AND ACADEMIC SPEAKING
SKILLS OF BILINGUAL LEARNERS

TAHIRA ADEEL ZAMAN

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ABSTRACT

This study aims to explore the effect of the L1-L2, that is bilingualism, on the cognitive abilities and academic speaking skills of learners in the Pakistani context. Specifically, it seeks to identify factors that influence learners' abilities to deliver presentations and engage in creative discussions, evaluate the effectiveness of a bilingual medium of instruction, and propose guidelines for bilingual pedagogy at the tertiary level. Employing a Mixed Methods approach, the study involves a sample of 380 undergraduate students selected through convenience sampling, along with interviews with four teachers, selected through purposive judgment sampling. Four research instruments are utilized, including an adopted questionnaire and a cognitive flexibility scale sourced from the literature. Additionally, classroom observations, presentation score comparisons, and interview protocols are employed to collect data. Descriptive and inferential statistical analysis are conducted to analyse survey data for mean and cumulative percentage, while thematic analysis techniques are employed to analyse data obtained from classroom observations and interviews. The findings of the study provided valuable insights into the effect of bilingualism on cognitive flexibility and its manifestation in academic speaking skills. Notably, academic speaking skills are found to be indicative of learners' ability to provide evidence and rationale to support their viewpoints. The interactive relationship between L1 and L2 further underscores the complexity of bilingual language use. As a result, the study suggests pedagogical approaches for language classes at the tertiary level, aiming to optimize the learning experiences of bilingual learners.

Keywords: Bilingual, bilingualism, L1-L2 relationship, cognitive flexibility, academic speaking skills, classroom observation, interviews

APPROVAL

This is to certify that this thesis conforms to acceptable standards of scholarly presentation and is fully adequate, in quality and scope, for the fulfilment of the requirements for the degree of Doctor of Philosophy.

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(27 March 2025)

DECLARATION

I hereby declare that the thesis submitted in fulfilment of the PhD degree is my own work and that all contributions from any other persons or sources are properly and duly cited. I further declare that the material has not been submitted either in whole or in part, for a degree at this or any other university. In making this declaration, I understand and acknowledge any breaches in this declaration constitute academic misconduct, which may result in my expulsion from the programme and/or exclusion from the award of the degree.

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LIST OF ABBREVIATION

CD	Cognitive Development
CF	Cognitive Flexibility
L1	Language 1 (native Language, Urdu)
L2	Language 2 (second language, English)
LF	Linguistic Flexibility
LTH	Linguistic Threshold Hypothesis
MOI	Medium of Instructions
PFQ	Psychological Flexibility Questionnaire

CHAPTER 1

INTRODUCTION

1.0 Introduction

The chapter discusses the introduction to the study, that focuses on the investigation of the relationship of L1-L2 on cognitive flexibility and academic speaking skills of undergraduate students. This chapter discusses the background of the research, statement of the problem, research objectives and research questions. Furthermore, the chapter also elaborates on the need of this research, the researcher's motivation to take this research area and some definition of the key focus terms and areas.

1.1 Background of the Problem

The study's main area of investigation is the influence of bilingualism, L1 (Urdu) and L2 (English) relationship on the cognitive flexibility and academic speaking skills of undergraduate students at tertiary level. The study aims to understand the L1-L2 relation and influence, whether it is positive or negative and to evaluate its effect on cognitive flexibility, that means the problem-solving and comprehensive skills, along with academic speaking, which includes effective speaking and presentation skills. The context is Pakistan, for the reason that the educational structure of Pakistan is different from the most regions where such a study was conducted and due to the lack of adequate study and research done in the context of Karachi, Pakistan and on tertiary level.

1.1.1 Education Structure of Pakistan

The system of education in Pakistan has been through a process of change and restructure over the past 75 years. With over 50 plus education board along with a couple of foreign education system also mixed in. this resulted in a mixture of

education sectors and confusion in teaching pedagogy altogether. The focus shifted from what to learn to gaining high grades only, medium of instruction and language teaching became another issue.

The connotation of higher education institutions is to develop a wholistic personality of the learners, inclusive of social and spiritual skills as well. Educational institutions also contribute toward a country's economic state while influencing the socio-political atmosphere as well. In Pakistan, as per Memon (2007), secondary and college education sole purpose has been to prepare the learners for tertiary education, whereas the tertiary institutions are not focused on creating market required individuals (Habib et al., 2021).

Tertiary education focus is to guide and work with the industries to create able beings who can contribute to the economic and stability of the state, as there is a close link between education and development of the country, however the issues lie in adequate policy implementation and opportunities to excel the linkage of both industry and education sector (Aziz et al., 2014).

1.1.2 The Changing Education Structure & Medium of Instruction

Pakistan Higher Education system has been in a state of constant change and upgrades for over fifty years, in terms of following cultural patterns and then keeping up with the times of the ever-changing world while maintaining quality teacher education and educational practices of the overall education system (Murtaza & Hui, 2021).

Akram et al. (2021) paper has highlighted several issues with education system in Pakistan and have pointed out inadequate pedagogy of English (L2) leading to conflict with both L1 (Urdu/native language) and L2 (English). The issue lies in lack of investment on education sector by both the government with regards to budget and

private sector in teacher training and upgrade of teaching pedagogy. They further pointed out that the higher education system lacked training and development of teachers, research initiatives and soft skill-based education.

Mehboob's study (2002, 2017) discovered the issues with medium of instructions and resulting in a confused teaching learning environment. His study further elaborated by Irfan (2013) in a different contextualized environment discovered the wrong use of medium of instructions had an adverse effect on learners' skills and abilities. The issue of medium of instructions at tertiary level and the most adequate teaching pedagogy for that level is one of the causes because of which language education has suffered. Language, as many studies have suggested, contributes to higher cognitive development as well as a major force for career advancement.

1.1.3 Background of English Language Dominance in Pakistan

A brief history of English language dominance in the Pakistani context will also explain language pedagogy and the effects it has had on the educational system of Pakistan. English language is considered as the lingua franca (Brutt-Griffler, 2002; Crystal, 2003; Seidlhofer, 2005), this has been a reality in the subcontinent, a result of 200 years of colonization and post-independence English became the official language of Pakistan (Tariq et al., 2013). This led to the government insisting on English being the medium of instruction in school, college and university level, leading to a language chaos in the education sector.

Government and private sector of education played a massive role in making English the lingua franca in education especially in teaching of language learning (Bashiruddin & Qayyum, 2014). English language skills are given the top seat while other skills related to language teaching and learning are not given due priority since

the very basics of a learner academic year. Learners are faced with multilingual environment that causes confusion and the native languages are somewhat not given due importance, even though the constitution of Pakistan states that a child be taught in their native language (Dar, 2015).

1.1.4 Lack of Focus of Speaking Skills

In many schools in Pakistan, the assessment is writing based, as it is convenient and easy to take, this doesn't allow the learners to use their verbal skills to display their learning and language acquisition. Many schools do not even take verbal skills assessments or exam as it is called in Pakistan, thus creating a lack of opportunities for learners to showcase or improve their spoken skills (Hussain et al., 2021). A number of learners go through the same lack of spoken skill evaluation for about 12 school years, where written skills are given more weightage and importance, resulting in nervous learners who have trouble speaking when they are moved to tertiary level. The lack of exposure to spoken skills at university level classroom, has students who need time and encouragement to be able to ask a question in class or give adequate presentations (Hussain et al., 2021). Most students passing from intermediate class which is known as Higher Secondary Certificate in local context, have been through a system where only written examinations are taken and given weightage, students from Cambridge background have relatively more confidence to speak in class, as their curriculum has presentation skills, in most subjects.

When students enter universities, they are being prepared to undergo a tough routine gearing them for the professional world that they all will be a part of. Since the marketization of education, the needs of the corporate sector are kept at priority, all universities want their graduates to be employed with a successful professional life,

this is credited to the universities as well since the student's degree plays an important role. Step one of corporate entry is the interview process, post the resume, that is where the candidate has the opportunity to exhibit their skills and capabilities, the point where they sell themselves to potential employers (Hussain et al., 2020). Mostly the medium of interview communication is English, if a candidate fails to express themselves and their thoughts in English, they are considered subpar and possibly not considered for round 2. The confidence in speaking skills, being able to handle questions and problem-solving abilities are tested during the interview process, as English is considered to be the global language, and that becomes the selecting standard for many companies. Many students have reported that first second and even third interview goes very tough, but if a potential employer encourages bilingual interviews, they report that those go exceptionally well as opposed to pure English-speaking ones.

To meet the demands of the corporate sector and students own need to be thorough professionals, communication courses are specially prescribed and described by the higher education commission of Pakistan, also known as HEC. These courses are designed not just to evaluate writing skills, but also listen, reading and most importantly speaking skills. As presentation are an essential part of every course and subject, the task of the communication teacher is to equip learners with the right skills. However, this is where the issue arises, since a mix group of students enter the university, some from strong educational background and some not, the right language teaching pedagogy needs to be implemented for the most effective manner of teaching.

Thus, the focus of this study is on the variables of academic speaking skills, that helps in understanding cognitive flexibility, the problem-solving critical thinking ability, and the influence of L1-L2 on bilingual learners. The notion that is it an additive or a subtractive influence or is it neutral at tertiary level. A systematic training

of learners to be able to design and present effective presentations. Academic speaking, in the context of this study is to present ideas and discussions, with evidence and proof and/or examples. The use of evidence makes a point valid and impactful, so in students' presentation, this particular aspect will be observed.

The data for the study is mostly primary data collected through qualitative and quantitative processes, that is interviews, classroom observations and activities scores with a questionnaire to determine the issues of higher education language teaching and academic speaking skills with bilingualism effects on cognitive flexibility.

1.2 Problem Statement

Recent studies that support bilingual pedagogy have endorsed an added benefit in children's executive and cognitive function, but there are some cases where it has failed as there were no bilingual benefit (Shokrkon & Nicoladis, 2021). There are cases of subtractive bilingual effect, however, the pros of being bilingual out weights the cons and have sufficiently provided with evidence that it is better to know more than one language for a higher order cognitive function.

However, research also suggests that L1 needs to be of a certain proficient before L2 can be of value, to which Cummins (1979) suggested the threshold hypothesis. In the local context of Pakistan, L1, L2 and even L3 (regional languages) have merged in so much that the LTH is proving of value in research. The researchers also noted that LTH has been tested in various social and linguistic background, however, no study in Pakistan was conducted in this domain per say. Thus, resulting in L1-L2 effective relationship and affecting the higher order cognition. Contextual study on this area is lacking especially with regards to the efficacy of bilingualism, the threshold for linguistic competency and the effect it has on cognitive functions.

According to Gulzar (2004) there is not enough evidence to support the dimensions of bilingualism discourse in the Pakistani context, at either school or tertiary level. The lack of research, more so the lack of context-based research has led to a gap in the domain of L1-L2 relationship as well as the effects either additive or subtractive in nature are to be studied.

Pedagogical studies are vastly done however, effects, cognitive functioning as well as focusing on specific skills of language proficiency are lacking. Teaching pedagogy or medium is not prescribed in any school or tertiary level institutions, hence another gap in the language teaching and research area (Bukhari & Shakir, 2020).

Fauzia and Rashid (2019) study on the medium of instruction at higher level revealed that in the Pakistani context, teachers' and learners' construct their own and others' identities in accordance to their own prior and existing educational and social experiences of language learning and use of the language as well. They further added that language related concepts, misunderstandings and issues are in some way pertinent to the state's policy regarding language.

Rehman (2010) and Manan (2021) research and studies have significantly pointed out the issue of medium of instructions and thereof the lack of bilingualism in the teaching pedagogy that is creating a learning gap in the students conceptual learning. Rehman (2010) further expands regarding the medium of instruction in the Pakistani educational system and the means with which it signifies the low value of regional and national language, while the high position English relishes. However, it is indeed noted that English language does not exist in neutral social spaces and the fact that it is forced onto learners and office bearers is a cause of inequality and loss of quality education (Manan, 2021).

In exploring the dynamics of bilingualism, particularly the relationship between one's first language (L1) and second language (L2), researchers have identified significant implications for speaking skills and cognitive flexibility. Cummins (1979) and Ng (2019) underscore the profound impact that the additive and subtractive nature of L1 and L2 can have on these cognitive domains.

The additive nature refers to the situation where proficiency in the second language enriches rather than replaces proficiency in the first language. In contrast, the subtractive nature suggests that the acquisition of the second language comes at the expense of proficiency or use of the first language. These dynamics are crucial as they shape not only linguistic abilities but also cognitive processes. When examining academic speaking skills, individuals with an additive bilingual experience may demonstrate greater linguistic complexity and fluency, drawing upon the strengths of both languages. On the other hand, those experiencing a subtractive bilingual environment might encounter challenges in maintaining proficiency in their first language while navigating the demands of the second language.

Moreover, the relationship between L1 and L2 extends beyond linguistic competence to cognitive flexibility, which encompasses the ability to adapt and switch between different cognitive tasks or mental frameworks. In bilingual contexts, individuals often develop enhanced cognitive flexibility as they navigate between two linguistic systems. However, the nature of this flexibility can be influenced by whether the bilingual experience is additive or subtractive. Additive bilingualism may foster a more robust cognitive flexibility, as proficiency in both languages offers diverse cognitive resources and perspectives. Conversely, in subtractive bilingual environments, individuals may face cognitive challenges stemming from the dominance of one language over the other.

Furthermore, the impact of the medium of instruction adds another layer of complexity to this relationship, particularly in tertiary education settings. Jabeen (2020) highlights the significance of considering the language used in academic instruction, as it can influence not only language proficiency but also cognitive processes and academic performance.

Depending on whether the medium of instruction prioritizes L1, L2, or a balanced bilingual approach, students may experience varying degrees of additive or subtractive effects on their speaking skills and cognitive flexibility. The educational approach can significantly influence the development of academic speaking skills in bilingual students. Interactive pedagogical methods such as collaborative learning, role-playing, and debates have been shown to enhance the development of oral English-speaking skills in bilingual students (Grigorieva et al., 2022).

The problem that the study is focused on, is the use of adequate medium of instructions for language classes, resulting in lack of learning and understanding of the subject and language being taught. Thus, the bilingual teaching pedagogy is the focus of this study to understand its effectiveness. Further on, the study focused on the relationship between L1 and L2, with its effect on cognitive flexibility and academic speaking skills.

1.3 Purpose of Study

The primary objective of this research is to address existing gaps in the understanding of the relationship between a person's first language (L1) and second language (L2), particularly in the context of bilingualism and its impact on learning. By delving into this relationship, the study aims to uncover the contributions that bilingualism offers to the learning process, especially at the tertiary level. Additionally, it seeks to evaluate