

## Semantic Priming, Lexical Framing, and Attitude Formation: A Psycholinguistic Study of Word Associations in Undergraduate Learners

Aysha Khan<sup>1</sup>, Kamran Ali<sup>2</sup>

<sup>1</sup> Senior Lecturer, Department of English, Faculty of Social Sciences and Humanities, Hamdard University, Karachi, Pakistan, Email: [aysha.khan@hamdard.edu.pk](mailto:aysha.khan@hamdard.edu.pk)

<sup>2</sup> Associate Professor, Department of English, Faculty of Social Sciences and Humanities, Hamdard University, Karachi, Pakistan

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### Abstract

This study explores how undergraduate students in Pakistan relate to semantic priming, lexically framed influence, and the formation of attitudes from a psycholinguistic perspective. Utilizing the Spreading Activation Theory and Framing Theory, the research analyzes how lexical stimuli impact students' word associations and evaluative attitudes towards conceptual understanding (academic vs social). A mixed methods research design was used to carry out this investigation through both quantitative and qualitative approaches. The target participants were undergraduate students enrolled in an English medium institution in Bachelor of Science (BS) programs, specifically BS English, BS Psychology, and BS Education. Data collection methods consisted of a demographic questionnaire, a Primed Word Association Task, and Lexical Framing Task with positive and negative frames measured using Likert scale responses. The quantitative analysis included frequency counts and descriptive statistics, while the qualitative analysis involved thematic coding of participant responses. The results showed that participants made strong positive semantic associations between English and both "communication," "opportunity," "achievement," and "success." Participants were also more positively influenced by lexical framing for learning English and developing their academic abilities than negatively. The negative response to the framing task was primarily due to the words chosen to communicate stress, barriers, and struggle. Additionally, the study found that semantic priming activates automatic cognitive associations, whereas lexical framing influences evaluative judgments made consciously. Overall, the study provides evidence demonstrating how significantly language influences cognition and perception.

**Keywords:** Semantic Priming, Lexical Framing, Psycholinguistics, Attitude Formation

### Introduction

Language is much more than just a way of communicating; it is the foundation of the way humans think, see the world, and feel about each other and our surroundings (Alejandro, 2024). It is interesting to explore that how the words we hear affect our mental processes (often at an unconscious level) within the field of Psycholinguistics. Semantic priming is a cognitive process that occurs when a person is presented with a stimulus (the prime) and that exposure leads to easier access and comprehension of a related (target) stimulus (McNamara, 2005). This is explained by the theory of Spreading Activation (Collins & Loftus, 1975), which posits that concepts in a person's memory are stored in networks of nodes that are all linked together via associative

pathways, and therefore, once one node is activated, this activation spreads to other related nodes and makes them easier to access and comprehend. Thus, after exposure to related stimuli, it becomes easier to access certain words and/or ideas from memory. Similarly, lexical framing demonstrates that the way language is used can have an influence on how a person interprets and evaluates the information they receive. Framing theory posits that the way an issue is framed using different words will lead to different ways in which an issue will be interpreted (Ullah, 2024).

The processes related to attitude formation are strongly affected by cognitive influences that have an unconscious effect (van Giesen et al., 2015) on an individual's reactions when individuals are not completely conscious of the cognitive sources of their reaction. Furthermore, the concept of automaticity in social cognition (Bargh et al., 2012), as discussed within the context of the Automaticity of Social Behavior and its relevance to social behaviour, suggests that an individual who is exposed to lexical items can inadvertently activate thoughts/beliefs and/or evaluations that are associated with them. Therefore, these types of processes exist in an educational context, particularly among undergraduate student, and may be significantly influencing students' perceptions towards academic and social issues (Li & Xue, 2023). Although there has been considerable research on semantic priming and framing in Western societies, little empirical research has been conducted on how these cognitive phenomena operate among undergraduate students in Pakistan. Because of the multilingual and sociocultural complexity of the Pakistani educational system (Romanchuk et al., 2025), it is necessary to examine the contribution of lexical associations and framing effects on students' cognitive and attitudinal responses. As such, this study will examine the interaction of semantic priming, lexical framing, and attitude formation from a psycholinguistic point of view among undergraduate learners.

### **Research Questions**

The present study is guided by the following research questions:

1. In what way does Semantic Priming have an impact on word associations among undergraduate students?
2. How does Lexical Framing affect attitudes of undergraduate learners toward selected concepts?
3. Are there relationships between primed lexical associations and formation of subsequent attitudes for undergraduate learners?

### **Literature Review**

The field of Psycholinguistics has provided strong support that cognitive activation and evaluative judgment are directly associated with how we process language (Huettig et al., 2011). One of the most important constructs found within this area of study is Semantic Priming, which describes how hearing one word can aid someone in recognizing or producing a second semantically related word. David E. Meyer and Roger W. Schvaneveldt (1971) were among the first to provide experimental evidence of this phenomenon (Slowiaczek & Pisoni, 1986), revealing that subjects responded faster to pairs of semantically related words than they did to those pairs of unrelated words, suggesting an associative organization within the mental lexicon. The theoretical underpinning of this semantic priming phenomenon is Spreading Activation Theory, which postulates that lexical items are stored within related networks (i.e., within the mental lexicon) such that activation will automatically spread (to varying degrees) across networks of related lexical items (Lerner et al., 2012). Further investigations into semantic priming suggest that its application might extend beyond mere recognition of words to include higher order cognitive processes. Further work has established that priming may affect both lexically accessed items but also affective reactions and decision making processes; often without the subject being aware of

such intrusions on their conscious thought processes (Mangat et al., 2026). Lexical framing has received increasing attention in conjunction with the concept of semantic priming, as it relates to the impact that linguistic choices have on how individuals interpret or create meaning (Leonard, 2011). Framing Theory has been used by several researchers to demonstrate that the lexical representation of a particular topic can produce very different judgments/attitudes, for instance the way a given topic is "framed" as being either "gain" or "loss"; this has been examined in depth by both cognitive/psychological and discourse-based researchers for how it may contribute to risk perception or preference (McKenzie et al., 2025). In particular, semantic priming has been shown to have a significant impact within educational/sociopolitical contexts where there are strategic and intentional uses of lexicon in order to generate specific narratives or ideological perspectives (Perea & Rosa, 2002). Despite significant theoretical advances in the study of priming and framing, a number of crucial gaps still exist. One major gap in the knowledge base is the majority of research into priming and framing has been done in laboratory settings with Western populations and therefore the conclusions drawn from those studies are not easily generalizable to other cultures and languages (Albarracin & Dai, 2021). To date, there are very few empirical studies examining the interactions of semantic priming and lexical framing in non-Western contexts, especially in Pakistan with undergraduate students; and previous studies have attempted to treat priming and framing as independent constructs with little empirical investigation into the combined effects of priming and framing on the formation of attitudes. Although the effects that language has on cognition have been well-established, there has been a lack of research into the ways in which students may create lexical associations and evaluative responses based on their everyday academic experiences; specifically, the classroom discourse and language used within their academic setting (Noor et al., 2025). To address the aforementioned gaps in the literature, this study will examine the relationship between semantic priming, lexical framing and the formation of attitudes in undergraduate students in Pakistan. This study will also employ a combination of word association tasks and attitudinal measures based on framing to generate a more contextually grounded understanding of the influence of language on cognition and perception for undergraduate students in educational settings.

## **Methodology**

### **Research Design**

This mixed-method psycholinguistic research uses experimental and interpretive methods to explain how undergraduates' cognitive processing of language contributes to the way they form attitudes toward things. It is based on the field of psycholinguistics and highlights how Semantic Priming and Lexical Framing influence the way people associate words and respond to them evaluatively. The study will include both quantitative measures (e.g., Likert scale responses, frequency of occurring events) and qualitative measures (e.g., written descriptions), in order to identify both automatic cognitive activation and conscious reflection on attitudes.

### **Participants**

In selecting our sample, we relied upon purposive sampling of undergraduate students in the field of Social Sciences. In order to maintain comparability of linguistic input across participants, all participants have experienced English-Medium Higher Education. Participants have varying educational backgrounds and would therefore have varying levels of linguistic identity (i.e., experience with other languages). Participants will only be adult learners and will all be enrolled at institutions where English is the primary language of instruction.

### **Data Collection Instruments**

The data collection includes three separate sections of structured questionnaires:

## **1. Demographics Information Sheet**

Demographic information includes an age, gender, degree program, year of study, medium of instruction and first language, and self-rate of English knowledge.

## **2. Primed Word Association Task**

This is intended to ascertain the extent of semantic activation resulting from a controlled presentation of lexical stimuli. The prime word participants shall be given (i.e., success, failure, education and poverty) are to provide the first response word that comes to mind with an explanation of how they related to each of the primes. The conditions to be controlled/matched for the lexical stimuli shall include:

- Word frequency
- Word length
- Grammatical category
- Emotional Valence

The task is based on Spreading Activation Theory, which describes how activation spreads across related lexical networks contained in the mental lexicon.

## **3. Lexical Framing Task**

This second experimental measure examines the effect of the manner in which language frames an attitude on the development/formation of that attitude. In this task, participants are provided with several brief statements in both a positive and a negative frame, for example;

- "This course improves your skills" (Positive Frame)
- "This course shows you where you fail" (Negative Frame)

For each statement, participants will rate on a scale

## **Procedure**

Data collection is conducted in an aqlriclassroom or noise-free environment where you are not likely to experience any outside distractions while doing so. In order to allow all participants to be treated (all have the same treatment), they will fill out their demographics at the beginning, then complete either a primed word association task or the lexical framing task. Instructions will be given to you on paper so you will have the same instructions for all participants. It is important for the participant to respond as quickly and spontaneously as possible during the primed word association task to ensure that we get the best representation of their "in-the-moment" (their) lexical activation. Each participant should take approximately 10-15 minutes to complete the tasks.

## **Data Analysis**

The study employs both quantitative and qualitative analytical techniques:

- Quantitative analysis includes frequency counts of noun/verb pairs and descriptive statistics (mean, standard deviation) of responses to a LIKERT scale.
- Qualitative analysis will include thematic coding of responses from participants to identify common themes regarding semantic associations and reasons behind attitudes towards them.

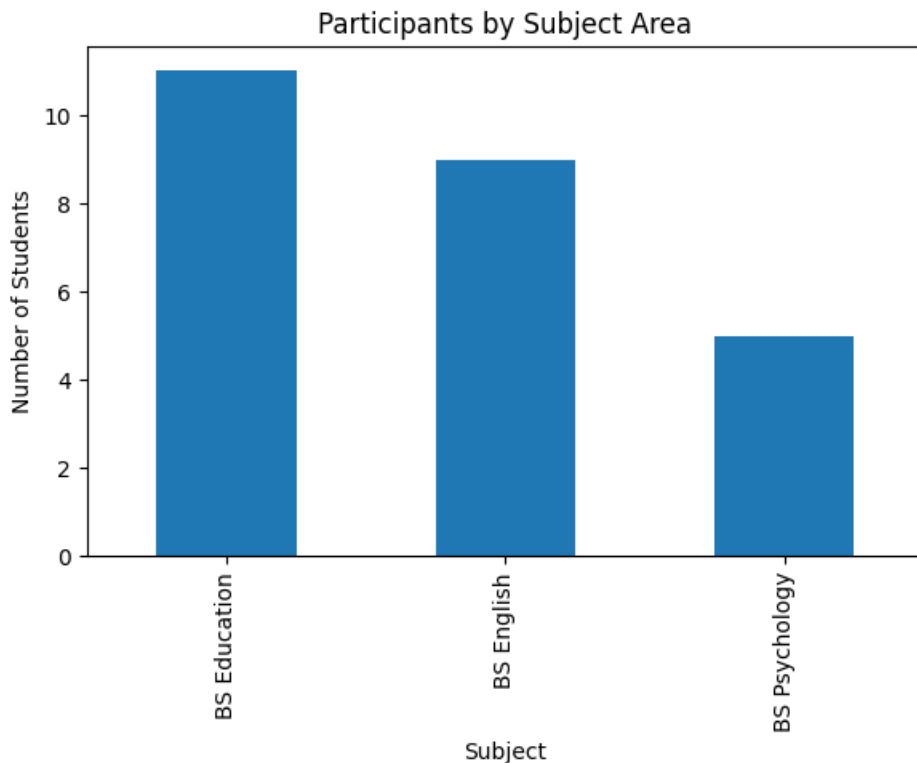
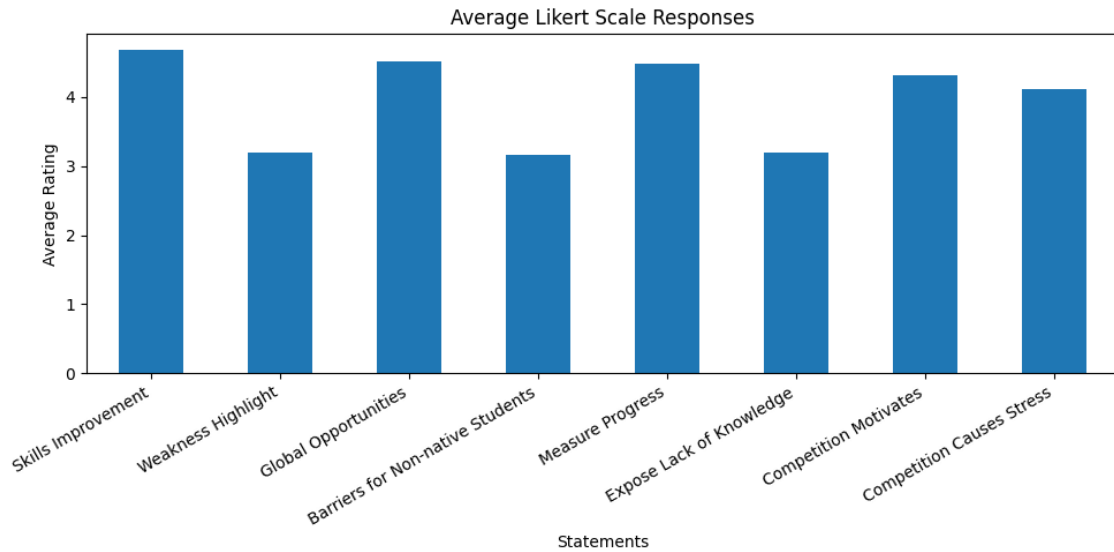
A combination of these two approaches will provide more in-depth insight into the relationship between lexicon processing systems and attitude formation systems when using language as a means of communication in natural language contexts.

## **Findings and Analysis**

### **Quantitative Findings**

This study involved 25 undergraduate students from different majors (BS English, BS Psychology, and BS Education). The quantitative analysis of their answers measured their level of agreement

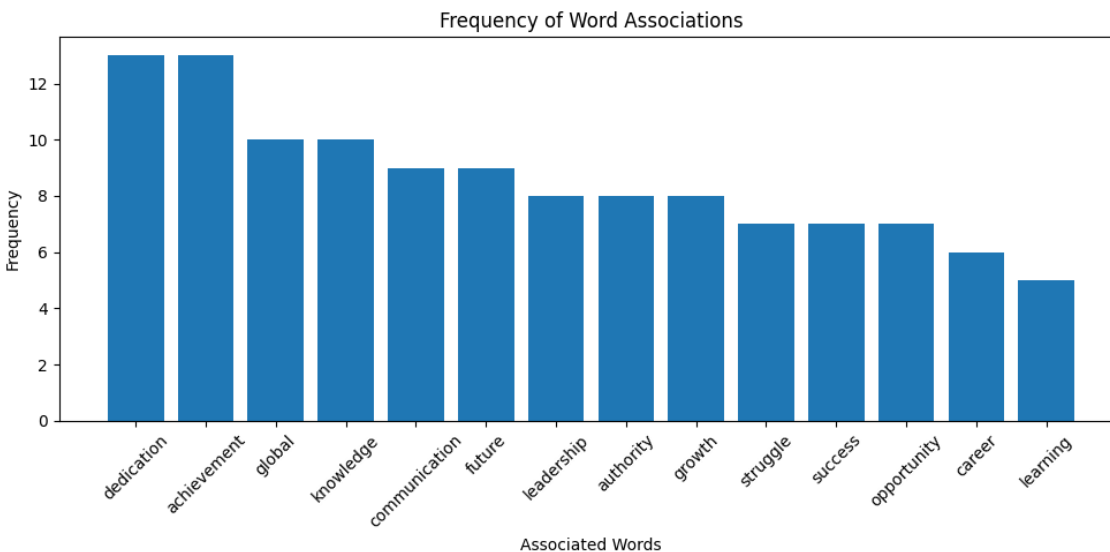
with a Likert scale response format. Overall, the data showed that most students perceived English as having a positive effect on developing their skills and providing global opportunities. The students had the highest level of agreement with the positive statements of "English improves your skills" and "English opens up greater possibilities in the world." Conversely, the negative framing statements received a higher percentage of moderate responses than positive framing statements did.



The participant distribution graph shows that the research sample was limited to students from English, Psychology, and Education departments.

## Qualitative Findings

Words that have been associated with the qualitative research were measured based on their frequency of occurrence. Common responses included 'achievement', 'knowledge', 'opportunity', 'success', and 'communication'. Most of the students associated English language skills with communication ability and opportunities available in the workforce. Conversely, hard work is typically associated with success (or dedication). However, answer to the negative word prompts (such as failure and poverty) indicated feelings of sadness and struggle.



## Discussion

According to the findings from this study, students' word associations and their attitudes towards learning English were significantly affected by both semantic priming and lexical framing. The quantitative findings indicated that students enrolled in BS English, BS Psychology, and BS Education generally showed positive responses to the statements about how much they believed their knowledge of English would help them develop new skills or provide them with global career opportunities. However, a number of students indicated that they also believed there were ways that knowing English could create stress or barriers to achieving academic success, indicating students had mixed attitudes toward their academic experiences. The qualitative findings were also consistent with this view. Many different students associated the following terms: opportunity/communication with English, hard work with success; while failure/poverty were linked to loss/struggle. These results suggest particular automatic cognitive associations created by educational and/or social experiences. In conclusion, the results from this research suggest that students' perceptions and attitudes towards English language acquisition and education are very much influenced by lexical framing and semantic priming.

## Conclusion

The research focused on examining how semantically primed and lexically framed language can affect the attitudes and word associations of undergraduate students regarding their experiences related to learning English and their experiences in academia. The study utilized both quantitative methods, such as Likert-scale surveys, and qualitative methods, such as participants' written word associations as well as explanations for those associations. It explored the extent to which language can affect cognition and perception among the students enrolled in the Bachelor of Science in English (BS English), Bachelor of Science in Psychology (BS Psychology), and Bachelor of Science in Education (BS Education) programs. The results indicate that most of the participants

hold positive attitudes toward the English language. For example, they often associate English with communication, opportunity, advancement, and success. On the other hand, several of the participants expressed concern about stress, barriers to learning, and academic pressures (especially in relation to negatively framed statements). Moreover, the study showed that semantic priming was able to evoke automatic cognitive associations for the students; but when written word associations were used, the students engaged in more deliberate thought about their personal beliefs and experiences. In conclusion, the study indicates that there is a strong and clear relationship between language, cognition, and the formation of attitudes. The research further suggests that the manner in which language is framed in educational settings can have a significant impact on how students perceive language, emotionally react to it, and make meaning of it. Thus, educators need to be aware of the potential impact of language framing when developing and implementing learning environments and academic communications.

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## Appendix A

### Primed Word Association Task

#### Information Required Response

- 1 Participant Name/ID \_\_\_\_\_
- 2 Age \_\_\_\_\_
- 3 Gender  Male  Female  Prefer not to say
- 4 Degree Program \_\_\_\_\_
- 5 Year of Study  1st Year  2nd Year  3rd Year  4th Year
- 6 Medium of Instruction in your university  English  Urdu  Both  Other: \_\_\_\_\_
- 7 First Language (Mother Tongue) \_\_\_\_\_
- 8 English proficiency self-rating  Beginner  Intermediate  Advanced  Fluent
- 9 Have you studied in English-medium schooling before university?  Yes  No
- 10 Frequency of using English in daily life  Very Often  Often  Sometimes  Rarely  Never

### Instructions for Participants

You will see a series of words (called *primes*). For each word:

1. Write the **first word** that comes to your mind.
2. Briefly explain **why** you chose that word (1–2 lines).

S. No.	Prime Word	Your First Associated Word (Target)	Brief Explanation (Reason for Association)
1	Success		
2	Failure		
3	Education		

Item No.	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	English course improves your skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	English course highlights your weaknesses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	English opens doors to global opportunities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	English creates barriers for non-native students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Exams help you measure your progress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Exams expose your lack of knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Competition motivates students to succeed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Competition creates stress and pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

S. No.	Prime Word	Your First Associated Word (Target)	Brief Explanation (Reason for Association)
4	Poverty		
5	English		
6	Power		
7	Hardwork		
8	Opportunity		