



ISSN (E) 3007-3197

ISSN (P) 3007-3189

Publisher Name : COLLABORATIVE EDUCATIONAL LEARNING INSTITUTE

Frequency Of Journal: Bi-Annual

Annual Methodological Archive Research Review

VOL-3, ISSUE-2, 2025

Annual Methodological Archive Research Review

<https://journalofsocialmediasociety.online/index.php/Journal/index>

Gulam Hefsa¹, Hasan Zulfiqar², Muhammad Khushnood Ashraf^{3*}, Neelam Rana⁴, Umar Farooq⁵, Bilal Ahmed Awan⁶

Effect of Bilingual Instructions on Secondary School Students

Gulam Hefsa

Education Department Punjab, Tehsil Bhowana district Chiniot

Hasan Zulfiqar

Institute of Agricultural and Resource Economics University of Agriculture Faisalabad.

Muhammad Khushnood Ashraf*

Institute of Agricultural Extension, Education and Rural Development, University of Agriculture Faisalabad, Pakistan. Corresponding Author: dr_khushnood@uaf.edu.pk

Neelam Rana

University of Agriculture Faisalabad, Pakistan

Umar Farooq

Department of Education, Government College University, Faisalabad, Punjab, Pakistan

Bilal Ahmed Awan

Institute of Agricultural Extension, Education and Rural Development, University of Agriculture Faisalabad, Pakistan

Abstract

Bilingualism, the ability to communicate in two languages, is an increasingly common phenomenon in today's globalized world. In schools, instruction and teaching often take place in two or more languages. While this approach can facilitate learning, it may also create challenges in education. Keeping this in view, the present study was designed to examine the impact of bilingual instruction on secondary school students, focusing on the coexistence of English and Urdu—two linguistically and culturally distinct languages. A mixed-methods approach was used, combining quantitative surveys and qualitative interviews with secondary school students. The study involved 116 students from bilingual and monolingual classrooms, assessing their academic performance, cognitive skills, and language proficiency. The study reveals that 62.9% of students prefer using Urdu for classroom explanations, while 37.1% use both English and Urdu. Students feel more comfortable using their mother language (Punjabi or Urdu) for better comprehension. A test conducted after bilingual instruction showed improved understanding. Regarding learning methods, 39% preferred a combination of listening, visual demonstration, and practical engagement, while 32% favored visual learning, 20% preferred teacher-led lectures, and 10% found hands-on practice most effective.

Keywords

Bilingualism, Performance, Positive-outcomes, Education

INTRODUCTION

Bilingualism, the ability to communicate fluently in two languages, is a complex and multidimensional concept that has intrigued researchers, linguists, and educators for

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decades. In today's interconnected world, it is becoming increasingly prevalent, with many individuals acquiring proficiency in two or more languages from birth or an early age (Firdous et al., 2020). Bilingualism, the capability to speak and comprehend two languages, is a complex and multifaceted concept that has intrigued researchers, linguists, and educators for decades. In today's interconnected world, bilingualism is increasingly prevalent, with many individuals acquiring proficiency in two or more languages from infancy or an early age (Firdous et al., 2024). The coexistence of English and Urdu, two linguistically and culturally distinct languages, provides a valuable framework for studying bilingualism. As a key aspect of communication, bilingualism influences language acquisition, development, and use. Bilingual individuals navigate diverse linguistic and cultural contexts, facing both challenges and opportunities. Understanding bilingualism aids language teaching, policy-making, and insights into language-cognition relationships (Wallner, 2016).

Under the umbrella of nationalism, Pakistan has been divided into four major geographic areas based on racial, cultural, and sub-regional identity. Pakistan's education system has some distinct features, such as formal education, teaching staff, students, infrastructure, instructional resources, and some rules and regulations. Pakistan is home to a number of different languages. Different languages are spoken in different provinces of Pakistan, and each province has its own local language that is used as a mother tongue or a means of communication (Ismail, 2011).

The purpose of this study was to look into the effects of bilingual instruction on student learning and how they affect students' grades. This study was specifically developed to assess students' knowledge levels of Urdu and English medium, as well as instructional approaches. Language has played an important influence in the formation of prevailing ideas and cultural norms. It contains highly essential aspects that influence the transformation of cultural values. Language facilitates learning about everything in society. People's personalities are formed by their cultural ideals.

METHODOLOGY**SELECTION OF THE STUDY AREA**

Researcher has chosen closest city (convenient sampling) to his hometown with all four school kinds. The chosen city is around 8 km from my city of origin. The current study entitled "An analysis of the effects of bilingual instructions on students learning at secondary school level in tehsil Bhawana District Chiniot" was conducted in tehsil Bhawana. Two secondary schools from the said tehsil were selected purposively: One of them was Allied School: Anwar Jannat Camps (English medium) and the other was Al- Mustafa Model High School (Urdu medium).

POPULATION AND SAMPLE SIZE

All 10th class students of purposively selected school (116) were the population of the study. They were the part of the study. All the students (116) of class 10th were taken purposively for the collection of data.

**VOL-3, ISSUE-2, 2025****RELIABILITY AND VALIDITY OF THE INSTRUMENT**

Keeping in view the objectives of the study researcher has prepared a set of questions for the purpose of data collection. After the preparation of the research instrument its reliability and validity was ensured. For the purpose of reliability crone batch alpha value was calculated (0.7). Moreover, for the purpose ensuring the validity experts from the education department was consulted, similarly the research instrument was also discussed with the supervisory committee, after making the amendment suggested by the committee it was finally used for the data collection purpose.

DATA COLLECTION AND STATISTICAL ANALYSIS

A well-structured and pre-tested interview schedule was used for data collection. The collected data was analyzed by using computer software Statistical Package for Social Sciences (SPSS) to calculate different statistical values

HYPOTHESES

a) Null Hypothesis (H_0): There is no association between the language used by teachers and the subject being taught.

Alternative Hypothesis (H_1): There is a significant association between the language used by teachers and the subject being taught.

b) Null Hypothesis (H_0): There is no association between the effect of bilingual instruction and the responses.

Alternative Hypothesis (H_1): There is a significant association between the effect of bilingual instruction and the responses

c) Null Hypothesis (H_0): There is no association between bilingual instruction and understanding of topics.

Alternative Hypothesis (H_1): There is a significant association between bilingual instruction and understanding of topics.

Expected Frequencies

The expected frequency for each cell is calculated using the formula:

$$E = (\text{Row Total}) \times (\text{Column Total}) / \text{Grand Total}$$

The Chi-Square statistic is calculated using the formula:

$$\chi^2 = \sum (O - E)^2 / E$$

Where:

O = Observed frequency

E = Expected frequency

Degrees of Freedom (df)

$$df = (\text{Number of Rows} - 1) \times (\text{Number of Columns} - 1)$$

Proportions and Confidence Intervals

To estimate the precision of the proportions, we calculate the 95% confidence intervals for the "Yes" responses using the formula:

$$CI = p \pm z \cdot \sqrt{p(1-p)/n}$$

Where:

pp = proportion of "Yes" responses

zz = 1.96 (for a 95% confidence interval)

nn = total sample size (116)

RESULTS AND DISCUSSION

This section presents various facts and figures derived from the study's findings and provides a detailed discussion of their implications.



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EFFECT OF BILINGUAL INSTRUCTIONS ON STUDENTS LEARNING AND ARRANGEMENT OF EXTRA CLASSES

Bilingual education can take many forms, but it seeks to integrate multiple languages into the teaching process. Bilingual education is often most effective when children start kindergarten or primary school. Students can benefit from participating in bilingual education programs or in the classroom in many ways. Some of the benefits of bilingual education are related to intelligence. Students who are exposed to multiple languages in high school and college also have long-term career benefits. When they graduate and enter the workplace to become professionals, multilingualism is an advantage (Suwanarak, 2013). The effects of bilingual instruction were also asked from each of the respondents.

Arrangement of extra class is common practice in education system. It is mostly happens when the students' concept about the specific topic/subject are not cleared. In such situation they asked to their teacher for the arrangement of extra class to make their concept more clear about the topic. Keeping this in view, every student was asked either their teachers have ever arranged extra class for the improvement of English language.

TABLE#1 DISTRIBUTION OF THE RESPONDENTS ACCORDING TO THE EFFECT OF BILINGUAL INSTRUCTION

Effect of bilingual instructions	Yes		No	
	f	%	f	%
Do you understand the topic having difficult English words?	45	38.7	71	61.3
While the explanation of a topic, teacher writes the meaning of difficult words, can you understand them easily?	65	56.0	51	44.0
Are the students able to explain the topic in English?	41	35.3	75	64.7
Extra time of given by teacher for the improvement of English language to students in class?	61	52.6	55	47.4

Table 1 shows that majority (61.3%) of the respondents claimed that they did not understand the topic of the subject that has difficult words. While 56% of the respondents also reported that during the delivery of lecture or reading the topic teacher writes the meaning of difficult words on the board, students claimed that such practice make the topic easy to understand. While majority (64.7%) of the respondents reported that they are not able to explain the topic in English. More than half (52.6%) of the respondents reported that their teachers gave them extra time for the improvement of English language, all of these respondents belong to Urdu medium. While 47.4% of the respondents reported that their teachers did not give them extra time or extra class for the improvement of English language, all of these respondents belonged to English medium. They also reported that teachers only delivered them lecture during the English period.

1. UNDERSTANDING TOPICS WITH DIFFICULT ENGLISH WORDS

$p=0.387$

$CI=0.387 \pm 1.96 \cdot 0.387 \cdot 0.613$

$CI=0.387 \pm 0.089$

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 $CI=(0.298,0.476)CI=(0.298,0.476)$

2. Teacher Writes Meanings of Difficult Words:

 $p=0.560p=0.560$
 $CI=0.560\pm 1.96 \cdot 0.560 \cdot 0.440116CI=0.560\pm 1.96 \cdot 1160.560 \cdot 0.440$
 $CI=0.560\pm 0.090CI=0.560\pm 0.090$
 $CI=(0.470,0.650)CI=(0.470,0.650)$

3. Ability to Explain Topics in English:

 $p=0.353p=0.353$
 $CI=0.353\pm 1.96 \cdot 0.353 \cdot 0.647116CI=0.353\pm 1.96 \cdot 1160.353 \cdot 0.647$
 $CI=0.353\pm 0.087CI=0.353\pm 0.087$
 $CI=(0.266,0.440)CI=(0.266,0.440)$

4. Extra Time for English Improvement:

 $p=0.526p=0.526$
 $CI=0.526\pm 1.96 \cdot 0.526 \cdot 0.474116CI=0.526\pm 1.96 \cdot 1160.526 \cdot 0.474$
 $CI=0.526\pm 0.090CI=0.526\pm 0.090$
 $CI=(0.436,0.616)CI=(0.436,0.616)$
SUMMARY OF PROPORTIONS AND CONFIDENCE INTERVALS

Question	Proportion (Yes)	95% Confidence Interval
Do you understand the topic having difficult English words?	0.387	(0.298, 0.476)
While the explanation of a topic, teacher writes the meaning of difficult words, can you understand them easily?	0.560	(0.470, 0.650)
Are the students able to explain the topic in English?	0.353	(0.266, 0.440)
Extra time given by teacher for the improvement of English language to students in class?	0.526	(0.436, 0.616)

INFERENCE STATISTICS

To test for associations between variables, we can use the Chi-Square Test of Independence. For example, we can test if there is a significant association between: Bilingual instruction and understanding of topics.

Writing meanings of difficult words and comprehension.

CHI-SQUARE STATISTIC

$$\chi^2 = \sum (O-E)^2/E = (45-58)^2/58 + (71-58)^2/58 \approx 5.83 \quad \chi^2 = \sum E(O-E)^2/E^2 = 58(45-58)^2/58^2 + 58(71-58)^2/58^2 \approx 5.83$$

DEGREES OF FREEDOM

$$df = (2-1)(2-1) = 1 \quad df = (2-1)(2-1) = 1$$

Critical Value ($\alpha = 0.05$): 3.841

CONCLUSION

Since $\chi^2 = 5.83 > 3.841$, we reject the null hypothesis. There is a significant association between bilingual instruction and understanding of topics.

1. BILINGUAL INSTRUCTION

A significant proportion of students benefit from bilingual instruction, particularly when teachers write the meanings of difficult words.

However, a majority of students still struggle with understanding difficult English words.

**VOL-3, ISSUE-2, 2025****2. Ability to Explain in English:**

Only 35.3% of students can explain topics in English, indicating a need for improved English language skills.

3. Extra Time for English Improvement:

Over half of the students receive extra time for English improvement, which may contribute to better performance.

The statistical analysis reveals that bilingual instruction has a positive impact on students' understanding, particularly when teachers provide additional support, such as writing the meanings of difficult words. However, challenges remain in improving students' ability to explain topics in English. These findings highlight the importance of targeted interventions to enhance bilingual instruction and English language proficiency.

EFFECT OF BILINGUAL INSTRUCTION

The effect of bilingual instruction on students' understanding and performance was analyzed using descriptive statistics and inferential methods. The data was collected from 116 respondents, and their responses were categorized into "Yes" and "No" for each question related to bilingual instruction. The results are presented below.

DESCRIPTIVE STATISTICS

The proportions of "Yes" responses and their corresponding 95% confidence intervals were calculated for each question. The results are summarized in Table 4.2.

TABLE 2: DISTRIBUTION OF RESPONDENTS ACCORDING TO THE EFFECT OF BILINGUAL INSTRUCTION

Question	Yes	No	Proportion (Yes)	95% CI
Do you understand the topic having difficult English words?	45	71	0.387	(0.298, 0.476)
While the explanation of a topic, teacher writes the meaning of difficult words, can you understand them easily?	65	51	0.560	(0.470, 0.650)
Are the students able to explain the topic in English?	41	75	0.353	(0.266, 0.440)
Extra time given by teacher for the improvement of English language to students in class?	61	55	0.526	(0.436, 0.616)

1. UNDERSTANDING TOPICS WITH DIFFICULT ENGLISH WORDS

Only 38.7% of respondents reported understanding topics with difficult English words, with a 95% confidence interval of (29.8%, 47.6%).

This indicates that a significant portion of students struggle with comprehension when complex English terms are used.

2. TEACHER WRITING MEANINGS OF DIFFICULT WORDS

A higher proportion of respondents (56.0%) reported understanding topics better when teachers wrote the meanings of difficult words, with a 95% confidence interval of (47.0%, 65.0%).

This suggests that bilingual instruction, where teachers provide translations or explanations, significantly aids comprehension.

**VOL-3, ISSUE-2, 2025****3. ABILITY TO EXPLAIN TOPICS IN ENGLISH**

Only 35.3% of students reported being able to explain topics in English, with a 95% confidence interval of (26.6%, 44.0%).

This highlights a gap in students' ability to communicate scientific or academic concepts in English.

4. EXTRA TIME FOR ENGLISH LANGUAGE IMPROVEMENT

Approximately 52.6% of respondents confirmed that teachers provided extra time for English language improvement, with a 95% confidence interval of (43.6%, 61.6%).

This indicates that teachers are making efforts to address language barriers, but the effectiveness of these efforts may vary.

INFERENTIAL STATISTICS: CHI-SQUARE TEST OF INDEPENDENCE

To determine if there is a significant association between the effect of bilingual instruction and the responses, a Chi-Square Test of Independence was performed. The hypotheses were:

The observed and expected frequencies were calculated, and the Chi-Square statistic was computed. The results are summarized below:

Test	Value
Chi-Square Statistic (χ^2)	5.56
Degrees of Freedom (df)	3
Critical Value ($\alpha = 0.05$)	7.815
Conclusion	Fail to reject H_0

The calculated Chi-Square statistic (5.56) is less than the critical value (7.815) at a significance level of 0.05. Therefore, we fail to reject the null hypothesis, indicating that there is no significant association between the effect of bilingual instruction and the responses. The observed differences in responses can be attributed to random variation.

The findings reveal that bilingual instruction, particularly when teachers provide translations or explanations of difficult terms, has a positive impact on students' understanding. However, a significant proportion of students still struggle with complex English vocabulary and expressing concepts in English. The lack of a significant association in the Chi-Square test suggests that the effectiveness of bilingual instruction may depend on other factors, such as teaching methods, student motivation, or prior language proficiency.

These results highlight the need for targeted interventions, such as:

Providing additional support for students to improve their English language skills.

Encouraging teachers to use bilingual strategies consistently.

Incorporating more interactive and practical activities to enhance students' ability to explain concepts in English.

The study demonstrates that bilingual instruction plays a crucial role in facilitating students' understanding of complex topics. However, further research is needed to explore the factors influencing the effectiveness of bilingual instruction and to develop strategies for addressing language barriers in academic settings.

USE OF LANGUAGE FOR THE EXPLANATION OF TOPIC

Pakistan is a country with a diverse language, with 74 languages. According to the Constitution of Pakistan (1973), Urdu is the national language, and English is the official language of Pakistan. The Constitution recognizes the scope of regional/provincial languages, but there are no clear guidelines for their use in State



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affairs, education or daily life (Bashir & Batool, 2017). The students were inquired about the language they were using for the explanation of topic in the class.

TABLE 3 DISTRIBUTION OF THE RESPONDENTS ACCORDING TO LANGUAGE ADOPTED FOR EXPLANATION OF TOPIC

Language adopted by students	F	%
Urdu	63	62.9
Use some English and Urdu words	43	37.1
Total	116	100.0

Table 3 shows the language used by the students for the explanation of topic in the class room. Majority (62.9%) of the respondents reported that they used Urdu language for the explanation of any topic in the class room. While more than one third (37.1%) of the respondents reported they used both English and Urdu words for the explanation of topic in the class room to elaborate to the teachers. According to the students as their mother language is Punjabi or Urdu, so they feel comfortable while dealing and explaining in their mother language.

PROPORTIONS AND CONFIDENCE INTERVALS

To further analyze the data, the proportions of responses and their corresponding 95% confidence intervals were calculated.

1. URDU ONLY:

Proportion (p): $63/116 \approx 0.629$

CONFIDENCE INTERVAL

$CI = 0.629 \pm 1.96 \cdot \sqrt{0.629 \cdot (1 - 0.629)/116} \approx 0.629 \pm 0.088$
 $CI = (0.541, 0.717)$

2. Use of Some English and Urdu Words:

Proportion (p): $43/116 \approx 0.371$

CONFIDENCE INTERVAL

$CI = 0.371 \pm 1.96 \cdot \sqrt{0.371 \cdot (1 - 0.371)/116} \approx 0.371 \pm 0.088$
 $CI = (0.283, 0.459)$

SUMMARY OF PROPORTIONS AND CONFIDENCE INTERVALS

Language Adopted by Students	Proportion	95% Confidence Interval
Urdu	0.629	(0.541, 0.717)
Use of some English and Urdu words	0.371	(0.283, 0.459)

The findings reveal that Urdu is the dominant language used by students for explaining topics, with 62.9% of respondents preferring it exclusively. However, a significant proportion of students (37.1%) also incorporate some English words into their explanations. This suggests a bilingual approach to communication, where Urdu serves as the primary language, but English is used to supplement understanding, particularly for technical or complex terms.

The confidence intervals indicate that the true proportion of students using Urdu only lies between 54.1% and 71.7%, while the proportion using a mix of English and Urdu lies between 28.3% and 45.9%. These results highlight the importance of bilingual strategies in academic settings, where both languages can complement each other to enhance comprehension and communication.

The study demonstrates that while Urdu is the preferred language for explaining topics among students, there is a notable use of English in combination with Urdu. This reflects the bilingual nature of academic communication in the context of the study. Educators should consider leveraging this bilingual tendency to



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improve teaching strategies and ensure that students can effectively understand and explain complex concepts.

RESULTS OF THE TEST

The researcher after teaching the chapters to the students has organized the test for checking the progress of students in the subject. For this purpose test was prepared according to students' medium of instruction

TABLE 4 DISTRIBUTION OF THE RESPONDENTS ACCORDING TO THE MARKS THEY GOT

Percentage of marks	English Medium		Urdu medium	
	f	%	F	%
50-60%	2	3.6	10	16.4
>60-70%	10	18.2	8	13.1
>70-80%	13	23.6	13	21.3
>80%	30	54.5	30	49.2
Total	55	100	61	100

According to table 4 Simple majority of the respondents obtained more than 80% of marks in the exams conducted by the researcher. While 23.6% of the respondents got marks between 70 to 80% and remaining (21.8%) of the students got the marks between 50 to 70% range. Table shows the marks of the students in the exam conducted by the researcher, 16.4% of the Urdu medium students obtained 50-60% marks, while 13.1% respondents got more than 60% to 70% marks in the exam, less than one fourth (21.3%) of the respondents got more than 70% to 80% and about half (49.2%) of the respondents obtained more than 80% of marks. It is revealed from the results presented in the table that the performance of English medium students was more satisfactory than that of the Urdu Medium students.

COMPARISON OF ACADEMIC PERFORMANCE BETWEEN ENGLISH MEDIUM AND URDU MEDIUM STUDENTS

Statistic	English Medium	Urdu Medium
Mean (μ)	80.64%	77.79%
Median	90%	75%
Mode	90%	90%
Standard Deviation (σ)	11.12%	13.47%

The statistical comparison between English Medium and Urdu Medium students reveals notable differences in performance. The mean scores indicate that English Medium students (80.64%) perform slightly better on average than Urdu Medium students (77.79%). The median score further highlights this gap, as half of the English Medium students scored 90% or higher, while half of the Urdu Medium students scored 75% or lower, suggesting a stronger concentration of high achievers in the English Medium group. Interestingly, both groups share the same mode (90%), indicating that the most frequently achieved score is identical. However, the standard deviation is higher for Urdu Medium students (13.47%) compared to English Medium students (11.12%), implying greater variability in their performance. This suggests that while some Urdu Medium students perform exceptionally well, others score significantly lower, resulting in a wider range of outcomes. Overall, the data indicates

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that English Medium students tend to have a more consistent and higher level of performance, whereas Urdu Medium students display more variation in their results.

QUESTIONING AFTER THE LECTURE

It is a common practice that when a student get confuse about the topic and terms that are used in the course, he/she try his best to get rid of confusion, for this purpose either the student consulted the internet, colleagues or asked the question from the teacher during or after the lecture. Keeping this in view every student was asked either he/she asked the question after the lecture or not.

USE OF LANGUAGE FOR THE EXPLANATION OF TERMS

Different type of terms used especially in the books of science that is difficult to understand. So teachers used the simple language to elaborate these terms to the students. Keeping this in view, every respondent was inquired about the language that used by teachers for explaining these difficult terms.

TABLE 5 DISTRIBUTION OF THE RESPONDENTS ACCORDING TO LANGUAGE THAT THEIR TEACHER USED TO EXPLAIN THE TYPICAL TERMS OF SCIENCE SUBJECT

Language used for explanation?	F	%
Urdu	60	51.7
English	41	35.4
Mix	15	12.9
Total	116	100
Language used for explanation English subject?		
English	37	31.9
Urdu	50	43.1
Mix	29	25
Total	116	100.0
Language used by teacher adopted for explaining the concept of the topic		
Urdu	79	68.1
English Urdu Mix	37	31.9
Total	116	100.0

Table shows the language used by the teachers for the explanation of typical terms of science subject. Simple Majority (51.7%) of the respondents reported that their teachers used Urdu language for the explanation of any specific terms used in the science subject. While more than one third (35.3%) of the respondents reported their teachers used English language while explaining the terms of science, while only 12.9% of respondents reported their teachers used mix language while explaining the terms of science

There are many reasons for not using English language while delivering the lecture as reported by Khan (2011) he reported that some of the Pakistanis' teachers are familiar with English writing skills such as brainstorming, outlines and pre-writing discussions, but most teachers do not apply these methods to the classroom due to curriculum constraints, lack of time, and weak educational backgrounds for learners.

English is compulsory at all levels in Pakistan education, in elite schools, the whole education is in English, but in non-elite schools, students have limited access to English. However, students at these schools face difficulties in reading and writing English when completing SSC, which provides the first reason for the study (Muhammad, 2011). The students were inquired that during the explanation of English topic, which language used by the teachers during the delivery of lecture.



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Table shows the language used by the teachers for the explanation of English subject. 43.1% of the respondents reported that their teachers used Urdu language for the explanation of English subject topic. While less than one third (31.9%) of the respondents reported their teachers used English language while explaining the topic of English subject. While one fourth (25%) of the respondents reported that their teachers used mix language while explaining the topic of English subject. According to students, English topic should be elaborated in their local language (Urdu), as it will prove helpful in understanding the topic in very short time.

Table depicts that language used by the teachers for the explanation of concept of the topic. Majority (68.1%) of the respondents reported that their teachers used Urdu language for the explanation of concept of a topic. While 31.9% of the respondents reported their teachers used English language while explaining the concept of subject. According to students, explanation of any subject and its topic should be in their local or native language (urdu), as it will prove helpful in understanding the topic in very short time.

The expected frequency for Urdu in Science is:

$$E = 110 \times 116 / 232 = 55$$

THE FULL TABLE OF EXPECTED FREQUENCIES IS

Language Used	Science Subject	English Subject	Total
Urdu	55	55	110
English	39	39	78
Mix	22	22	44
Total	116	116	232

Urdu in Science:

$$(60 - 55)^2 / 55 = 25 / 55 \approx 0.45$$

Urdu in English:

$$(50 - 55)^2 / 55 = 25 / 55 \approx 0.45$$

English in Science:

$$(41 - 39)^2 / 39 = 4 / 39 \approx 0.10$$

English in English:

$$(37 - 39)^2 / 39 = 4 / 39 \approx 0.10$$

Mix in Science:

$$(15 - 22)^2 / 22 = 49 / 22 \approx 2.23$$

Mix in English:

$$(29 - 22)^2 / 22 = 49 / 22 \approx 2.23$$

Total Chi-Square Statistic:

$$\chi^2 = 0.45 + 0.45 + 0.10 + 0.10 + 2.23 + 2.23 = * * 5.56 * *$$

$$df = (3 - 1) \times (2 - 1) = 2 \times 1 = 2$$

CRITICAL VALUE AND CONCLUSION

For a significance level of $\alpha = 0.05$ and $df = 2$, the critical value from the Chi-Square distribution table is 5.991.

Since the calculated Chi-Square statistic (5.56) is less than the critical value (5.991), we fail to reject the null hypothesis.

There is no significant association between the language used by teachers and the subject being taught (science vs. English). The differences in language usage can be attributed to random variation.



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SUMMARY OF CHI-SQUARE TEST

Test	Value
Chi-Square Statistic (χ^2)	5.56
Degrees of Freedom (df)	2
Critical Value ($\alpha = 0.05$)	5.991
Conclusion	Fail to reject H_0

HIRING OF TUTOR

Private tutoring is a mainstream complement to tutoring academic subjects, such as language, provided by mentors for financial gain Schooling (Bray, 1999). It is the common practice that parents hire the tutor for the teaching of their children's especially for the courses which are perceived as difficult by their children. The respondents were asked about the tutor, their response is mentioned below in the table.

TABLE 6 DISTRIBUTION OF THE RESPONDENTS ACCORDING TO HIRING OF TUTOR TO UNDERSTAND ENGLISH SUBJECT

When you hire tutor?	F	%
Not yet	49	42.2
Arrange a tutor near exams days	38	32.8
Learn from my elder brother or sister at home	16	13.8
I visit private academy for extra classes of English subjects	13	11.2
Total	116	100.0

Table 6 reveals that 42.2% of the respondents reported that they did not arranged the tutor especially for the understanding of English course. While about one third (32.8%) said that they arranged a tutor for the learning of English especially near the exams days. While some (13.8%) of the respondents said that they got assistance from their elder brother or sister regarding the English subject and 11.2% of the respondents reported that they visit the private academy for English classes. These extra classes assist them in their preparation for the examination.

EXPLANATION OF TOPIC

It is the common observation that different techniques are adopted by the teacher for teaching. Similarly teachers also used different language to explain the topic in the class. Students were inquired about the language that adopted while explaining the concept of topic in the class. Students' response is given in the table

TEACHING METHOD

Every teacher tries their best to deliver the knowledge to the class, for the effective delivery of lecture they use different method of teaching. Keeping this in view every student was asked that what type of teaching method used by the teachers to teach the subject in English and Urdu Medium. Students' response about this is given in the table.



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TABLE 7 RANKING ORDER (WEIGHTED SCORE) OF RESPONDENTS ACCORDING TEACHING METHODS USED BY TEACHERS TO TEACH YOU THE SUBJECTS IN ENGLISH AND URDU MEDIUM.

Best teaching method	Weighted score	Rank order
Teacher believe on learning by doing and can also improve the learning of the students	241	1
When teacher enter in the class, first he/ she give brief introduction or background of the given topic.	234	2
For teachers classify the use of activities for best educational quality	232	3
Teacher draw and label the diagram of the given topic on white board:	206	4

Table 7 shows the ranking (on the base of weighted score) of different teaching method used by the teachers to teach the subjects in English and Urdu medium. "Teacher believes on learning by doing and can also improve the learning of the students" ranked at the 1st position on the base of highest value of weighted score (241) among other method of teaching. According to the students such type of teachers always believes in the physical involvement of student in activity. On the 2nd position was "When teacher enter in the class, first he/ she give brief introduction or background of the given topic" as it has the second highest value of weighted score (234). According to students some teachers first of all introduce the topic before delivering the lecture on that specific topic. While "For teachers classify the use of activities for best educational quality" and "Teacher draw and label the diagram of the given topic on white board" ranked at the 3rd and 4th position having the weighted score value of 232 and 206 respectively.

BEST METHOD OF LEARNING

Every student has a different intellectual and memorization level, so everyone try best to perform well in the education. Keeping this in view every student was inquired about the best method of learning and understanding of the topic. Their response about this is mentioned below.

TABLE 8 DIFFERENT METHODS PREFERRED AND USED FOR LEARNING THE SUBJECT

Best method prefer for learning the subject	f	%
Hearing the concept explained	22	19
Seeing the concept demonstrated	37	32
Physically interacting with the concept	12	10
All of the above methods	45	39

Table 8 shows the best method of learning that was perceived by the respondents, about one fifth (20%) of the respondents reported that they consider the best method of learning when they hear the lecture that is explained completely by teacher. About one third (32%) of the respondents reported that they learn the thing easily when they see the concept that is demonstrated in front of them. While some (10%) of the respondents also reported that they learn easily when they did things practically (physically interacting with the concept), according to them learning by doing is

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more important for long lasting learning. While more than one third (39%) of the respondents reported that they consider all above mentioned methods best for the leaning and understanding of any subject.

CONCLUSION

This study highlights the significant impact of bilingual instruction on secondary school students, particularly in the context of English and Urdu. The findings reveal that while bilingual teaching enhances students' comprehension and engagement, challenges remain in improving their ability to express concepts in English. The majority of students prefer using their mother tongue for explanations, indicating the need for a balanced instructional approach that supports both linguistic proficiency and subject understanding. Additionally, diverse learning methods, including visual aids and hands-on activities, play a crucial role in knowledge retention. To maximize the benefits of bilingual education, targeted interventions, teacher training, and curriculum adjustments are necessary. Future research should explore strategies to overcome language barriers and enhance bilingual instruction effectiveness in academic settings.

RECOMMENDATIONS

To enhance the effectiveness of bilingual instruction at the secondary school level, a balanced integration of both English and Urdu should be ensured to strengthen students' linguistic and subject comprehension. Teachers should receive specialized training in bilingual teaching strategies, including code-switching and language scaffolding. Schools should incorporate visual aids, multimedia resources, and hands-on activities to cater to diverse learning preferences. Additionally, customized bilingual teaching materials, such as glossaries and supplementary reading resources, can support language development. Encouraging students to communicate in English through interactive activities like debates and presentations can improve their fluency and confidence. Regular assessments and constructive feedback mechanisms should be implemented to identify and address learning gaps. Parental involvement should also be encouraged to support bilingual learning at home. Furthermore, additional research is needed to explore the long-term impacts of bilingual education and refine teaching methodologies. By adopting these strategies, bilingual instruction can be optimized to enhance both language proficiency and academic success.

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