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Obstacles in English Learning: Perceptions of Science Major Undergraduates in Lahore

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Abstract: *Learning a language is a cognitive activity, and most of our personality traits, like extroversion and introversion, have demonstration in our language. The present study was conducted to explore the issues of language learning by science students at the University of Lahore. A mix-method was used in which both quantitative and qualitative techniques were employed on a population size of 150 participants. A survey questionnaire was prepared to collect data for achieving the objective of the present study. The questionnaire was comprised of two parts. A close-ended questionnaire and one open-ended question were used for data collection. The goal of the 12-question survey was to find out what students thought about the problems science students had learning English in four main areas: reading, writing, listening, and speaking, as well as the overall learning environment in science classes. Based on the survey results, we calculated the mean and standard deviation of science major students' views on the challenges of learning English in their science classrooms. According to the qualitative findings, the poor English language proficiency of scientific students is attributable to the traditional teaching methods employed in science classrooms.*

Key Words: Language Cognition, Teaching Skills, Science Students

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Introduction

Due to English's rising popularity in Pakistan, Pakistan's national research council reports that pupils with greater English abilities and understanding have better life possibilities (Bashir, 2017). Science undergraduates learning English as a second and mandatory subject face various challenges, although, they work hard to learn the language, they're unable to overcome obstacles. Despite hard work, this subject disappoints. Despite huge efforts, English teaching yields poor outcomes (Khan & Khan, 2020). "Failure in English equals failure in the entire" tests,

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according to Alsalhi et al. (2019). "A high percentage of failure impacts students in two ways: it undermines their possibilities for white-collar professions in the country and also destroys their morale" (2019.p.204).

English as a language is getting excellence and importance due to its being a lingua, Franca. English is unique and important worldwide (Aimin, 2019). Language is essential for education and communication, making it a modern necessity (Aimin, 2019). Medicine, engineering, pharmacy, health sciences, nursing, biology, physics, chemistry, computer science, and information technology are taught in English. Because of this, students pursuing higher education degrees in these fields are expected to use English regularly in their studies (Houwer et al., 2018). Hamsia (2018) states that communication requires English. Since students struggle to understand English but acquiring a second language is tough due to diverse reasons as English learners face grammar, vocabulary, and pronunciation problems due to native language intrusion (Shelby, 2017). Most students struggle with speaking, reading, listening, and writing, whether they pursue arts or science. Language acquisition is based on mastering the oracy and literacy skills that have receptive and productive applications. Oracy and literacy are important features for a language learner but most often in the Pakistani context, more importance is given to literacy while oracy is overlooked, and this is the reason that most well-educated people feel troubled speaking English. In the proceeding discussion, the literature endorses the premise that language should be learnt systematically and when a process is ignored, the results are not satisfactory and reliable.

Listening is key to speaking because the spoken language is the reproduction and retrieval of the aural information received by the hindbrain through listening which provides data in the process of language oral production. Listening is a very crucial English-learning skill. However, on the contrary, very scarce attention is paid to the university and school curricula. Much importance is given to writing, reading, and vocabulary than listening comprehension and spoken production. students experience numerous obstacles when listening to the English language. Listening is not a priority for both teachers and students, according to Osada (2019), who says that teachers try to avoid teaching listening while students learn listening without understanding what they are hearing. Consequently, this part of language instruction is the most overlooked (Osada, 2019).

Speaking a second language is a phenomenal achievement for second language learners as it encourages students to increase their vocabulary and learn about the world, but it can be challenging for undergraduate science students. In addition, the difficulty of English for science students is due to the absence of a sound-to-letter relationship. In other words, there are numerous ways to spell it out. If a person has difficulty hearing how to separate sounds combine to form words, they will struggle to sound out written words and accurately spell them (Joshua Jenkins, 2021). Speaking is vital and allows one to express thoughts, feelings, and ideas. Speech involves creating, receiving, and processing data, (Syekh and Cirebon 2019). speaking needs Situational context and participation (Syekh & Cirebon, 2019). Raba (2021) argues speech conveys meaning through verbal and nonverbal symbols in different settings. Numerous studies endorse the premise that all students, especially science students, should enhance their communication abilities via speaking (Raba, 2021)

Acquiring a second language is dependent upon literacy and oracy skills. Literacy is the reading and writing skills of a language learner. Reading enriches visual

memory and becomes a source when producing language in written form. Reading allows students to expand their vocabulary and learn about the world, but it can be a difficult task for science students at the undergraduate level. In addition, the absence of a sound-to-letter relationship is a major contributor to English's difficulty for scientific students. There are many different methods to write it down. A person who has problems hearing how phonemes combine to make words will also have trouble reading and spelling written words properly. Learning to put thoughts on paper is a necessary ability for each language user. However, it is still considered challenging, particularly for ESL students. Students in Pakistan have very low writing abilities.

Students of different ages and backgrounds at Pakistan's public and private universities study science, and many of them struggle with English as a second language. They do it by concurrently learning English as a second language and speaking their native tongues in the classroom (Khan & Khan, 2020).

Pakistani English language users have expanded dramatically from 2% in 1961 to 49% in 2003, although they still struggle with English terminology and sentence structure. These issues usually come from syntax, coherence, idea extension, vocabulary, and vocabulary misuse (Fareed, 2020).

Literature Review

A difficulty or obstacle is a notion with both objective and subjective validity. It is described as requiring effort or labour to complete. Considering this discovery, obstacles can be measured in numerous ways, as cited in (Simon & Newell, 2011). (Khan & Khan, 2020). The previous studies also examined the premise from different perspectives and some of the findings and recommendations of the studies have been mentioned here for reference. According to (Djiwandono, 2019), the learning of English is impacted by numerous concerns and obstacles. Kayaolu (2021) noted that there are various study articles and studies on the issues faced by science students and the significance of the English language. Effective language acquisition necessitates a vast array of skills, talents, practices, and resources. Several causes could be contributing to the lack of essential and anticipated improvement (Hossain, 2018). It is crucial, then, not only to address prospective concerns but also to preserve the learner's self-image, self-confidence, and drive to continue the language-learning process by controlling the probable and expected causes of their lack of expected progress (Bensalem, 2018). Despite the fact that not every student masters English as a second language (ESL) and that they do not learn under ideal conditions, science students are expected to achieve at least modest development in their English language skills (Quinn, 2014). In contrast, science students who really are learning English also face obstacles and make errors in spelling, syntax, grammar, and vocabulary when it comes to the English language. Native language interferes with the acquisition and use of English, resulting in grammar, vocabulary, and pronunciation mistakes (Gilakjani & Sabouri, 2016).

A study on speaking challenges conducted by Hamsia (2018) indicated that science students have trouble learning to communicate. The pupils did not value English as a second language in terms of grammar, fluency, pronunciation, or cultural background. Throughout the entire speaking activity, it was obvious that they lacked interest and confidence in participating. Never had students been given the opportunity to demonstrate their speaking skills. Therefore, Hamsia (2018) devised an approach to facilitate students' participation in the story-completion speaking activity. Using this method, for instance, the researcher was certain that participants

would be able to articulate their story's ending effectively. According to the results of his research, all learners of any age should practice speaking, particularly in a second language, to improve their skills. Others who speak a second language will probably understand it. To transmit information clearly and effectively, students must choose the most acceptable word and use the necessary grammatical rules (Hamsia, 2018). An experimental study by Sharif (2019) discovered that most Pakistani scientific students who learn English speak tediously and incorrectly due to a lack of phonological awareness. Even though reading a textbook in class is the student's or teacher's responsibility, the researcher found that clear and comprehensible pronunciation is the most crucial part of language acquisition.

Derakhshan et al. (2016) say English as a second language matters. Debate competitions and correct English pronunciation are required. Reviewing data from 20 male and female students from each college. They found English training and study essential. Teachers should know how to improve second language competency, focus more on book quality, speak more, and do more phonetic exercises. They also said a welcoming environment boosts students' confidence and questioning. (Derakhshan, 2016)

Research on science students' reading issues has revealed one of overseas graduate students' biggest hurdles (Krashen, 2014). Alghail and Mahfoodh (2016) researched how non-native English readers at a public university in Malaysia cope with the rigours of their studies. SAlghail and Mahfoodh (2016) found that graduate students struggled with data extraction and academic reading terminology (Alghail & Mahfoodh, 2016).

Writing is sciences students' most important skill, but the study shows it's also the hardest. Writing dominates language formation (Fareed, 2020). However, it is considered difficult, especially in ESL settings where scientific students struggle with writing. Fareed (2020) examined Pakistani ESL science undergraduates' writing challenges and their causes. It advised Pakistani science students on writing. Thirty undergraduate ESL students' writing samples were collected to identify their main concerns. The thematic content analysis employed interviews and essays. Pakistani undergraduate scientific students struggle to write due to poor grammar, vocabulary, and syntax, according to the theme analysis. Ineffective instruction, exams, huge classes, and low motivation contributed. The study suggested writing contests and inadvertent vocabulary instruction (Fareed, 2020).

According to Hossain (2018), most scientific students in northern Bangladesh do not get a suitable education because of inexperienced instructors, financial restrictions, a lack of a multimedia project teaching and learning system, and the absence of an English language club. Hossain obtained data via questionnaires and interviews. 15 students took 15 sets of English language foundational skills tests. An internet poll interviewed 15 boys and girls, six teachers, and 10 parents and legal guardians. Parents and instructors viewed English differently. Responders criticized students' English grammar, vocabulary, and speaking. The study revealed that scientific students should be encouraged to learn four competences despite the lack of current equipment (Hossain, 2018). Previous studies (Ahmad et al., 2013) and (Bicen et al., 2015) found multidimensional issues that have not been fully addressed. Ahmad et al. (2013) found that English instruction for science undergraduates is weak and needs quick attention (Ahmad et al., 2013). Due to a lack of English knowledge and confidence, science majors fear learning English speaking, writing, reading, and listening skills and mastering the language (Alsalhi et al., 2019). This study seeks to understand why

Pakistani undergraduate science students struggle with English.

Methodology

Research Design

To identify science major students' perceptions, a mix-method was used in which both quantitative and qualitative techniques were employed.

Creswell and Poth (2019) stated that the quantitative design of research elaborates a specific aspect through numeric data collection that can be analyzed by using frequency analysis and applying statistical methods. There are various advantages of the quantitative methodology, like how it aids in the establishment of correlations among variables and results. Creswell and Poth (2019) say that with this type of data, the actual results can be verified by independent replication and the analysis can be redone if necessary.

In qualitative research, observations and interviews are conducted with the participants, and the data are recorded, transcribed, and interpreted (Fareed, 2020). Rahman (2020) also stated that interpretive research design is important in interpreting the opinions, attitudes, perceptions, and experiences of the participants. It also helps to explore a phenomenon or a research problem (Rahman, 2020).

Sampling

The sample for the present study came from two public-sector colleges and two private-sector colleges in Lahore. A total of 150 intermediate learners who were studying at four public and private sector colleges in Lahore were chosen to be a part of my study. They range from 17 to 20 years of age and are of both genders.

Data Collection Instrument

A survey questionnaire was prepared to collect data for achieving the objective of the present study. The questionnaire was comprised of two parts. A close-ended questionnaire and one open-ended question were used for data collection. The 12-item questionnaire aimed to identify students' perceptions about the problems faced by science students in English learning regarding four major skills: reading, writing, listening, and speaking; and the overall learning environment in science classrooms. To seek a deeper understanding of the effects of students' perceptions about the obstacles faced by science students in English learning in their classes, one open-ended question was also formed, asking their opinion about the major obstacle on their way to learning English in science classes.

The twelve-item questionnaire was adapted from Azli, Shah, and Batiha et al. (2018) and Ali et al. (2018). After necessary minor changes, the questionnaire was contextualized for the present study. The 12-item questionnaire was divided into five (5) subscales: learning environment; speaking; reading; writing; and listening. The questionnaire's constructs were on a 1–5 point Likert scale of psychometric responses that are frequently used in questionnaires to obtain a preference or an acceptance (Ali et al., 2018). The semi-structured interview was inspired by the studies of Pahmi (2016) and Gürkan (2018) and was further contextualized to be relevant to the current study's objective.

Data Collection Procedure

After obtaining permission from the concerned authorities, the participants were approached and informed of the study objectives and requested to participate in the survey. It was clarified that their participation was voluntary, and they could leave the process at any stage. After seeking the students' consent, the questionnaire was given to them. The participants gave their responses to each of the questions on a 5-

point Likert scale, 5 = Strongly Agree, 4 = Agree, 3 = Uncertain, 2 = Disagree, and 1 = Strongly Disagree; and they answered the open-ended question given at the end of the questionnaire. After students completed the questionnaires, they were collected and taken for data analysis.

Data Analysis

In the present research work, researchers used the SPSS version 22.0 statistics software for the descriptive analysis of the quantitative data. The qualitative data sets were analyzed through thematic analysis. This two-stage analysis provided authenticity and objectivity.

Quantitative Data Analysis

Before addressing the next research question, descriptive statistics are supplied to characterise the summary measure of the data set for each item in the first section of the questionnaire (Lay & Khoo, 2009). Based on the survey results, we calculated the mean and standard deviation of science major students' views on the challenges of learning English in their science classrooms. The higher the score, the more students agree with the questionnaire statement. Table 1 depicts students' perceptions of English learning obstacles in their science classes.

Table 1.

Descriptive Statistics of Students' Perceptions Towards Obstacles in English Learning.

Questionnaire Items	Mean	Std. Deviation
LEARNING ENVIRONMENT		
Science students feel less confident in their speaking skills due to a lack of language practice in science classes.	3.81	1.071
I think that my English-speaking skill has slowed development because of a lack of encouragement in my science classes.	3.45	1.283
Classroom practices of English language in science classes concentrate only on giving answers to syllabus content.	3.29	1.459
SPEAKING		
The importance of speaking with fluency is ignored in science classrooms.	3.53	1.246
Focusing more on vocabulary learning of science subjects has a good effect on my fluency and speaking skills.	4.03	.969
READING		
The importance of reading for comprehension is ignored in science classrooms.	2.93	1.147
The practice of proper spelling and vocabulary is given less importance in science classrooms.	3.32	1.353
WRITING		
Concentrating less on English language writing in science classes has been a common trend in classrooms.	3.22	1.198
The traditional teaching methods for science at the college level focus less on writing skills.	3.41	1.148
Our education system lacks in development of creative writing skills in English for science students.	3.69	1.068

Questionnaire Items	Mean	Std. Deviation
LISTENING		
The local accent creates problems for me in listening comprehension.	3.65	1.023
An audio-visual facility must be provided in the science classroom to improve listening skills.	3.43	1.255
Valid N (listwise)	150	

The first subscale, consisting of three items, sought to ascertain students' perceptions of whether the learning environment in science classrooms had a detrimental influence on their English learning. In this respect, item 1 received a mean M=3.81, SD = 1.071 in relation to the statement that "science students are less confident in their speaking skills due to a lack of practice." The findings reveal that science students have a significant lack of practice in speaking skills, and they believe that practising speaking skills would be extremely advantageous in raising their confidence level for successful communication in English. While the mean score for item 2 (M=3.45, SD = 1.283) suggests that science students' speaking skills improve slowly due to a lack of encouragement in their science classes. To put it another way, the mean score for item 2 (M=3.45, SD = 1.283) suggests that science students' speaking skills improve slowly due to a lack of encouragement in their science classes. In other words, students believe that if they are encouraged and given opportunities to speak in their science classes, their speaking skills would improve.

The mean for the third statement was M=3.29, SD = 1.459. The findings demonstrated that the participants agreed with the statement that English language classroom practice focuses solely on syllabus content. Overall, the participants perceived their science class environment as not allowing them sufficient speaking practice. Furthermore, they receive no encouragement for any extracurricular activities and were forced to limit themselves to curriculum activities solely, causing them to lose confidence.

On the second subscale, item four scored mean M = 3.53, and standard deviation SD = 1.246. The data indicate that the respondents agreed with the statement that the importance of speaking fluency is ignored in science classrooms which deprives them of the speaking opportunity in their science classes. It implies that the importance of this major language skill should duly be acknowledged and made part of learning during science subjects teaching.

Item five obtained M = 4.03, SD = .969 shows that the majority of the respondents confirm that greater emphasis on learning vocabulary related to science subjects has a positive effect on speaking fluency and it can certainly help science students improve their speaking skills.

The respondents also confirm that the importance of reading for comprehension is ignored in science classrooms. The corresponding obtained data for that item were M = 2.93, and SD = 1.147.

The means and standard deviation of item seven (M=3.32, SD=1.353) reveal that students perceived that the practice of proper spelling and vocabulary is given less importance in science classrooms. It implies that more attention is required towards the vocabulary development of science students which is an integral part of the most important receptive skill reading.

Findings revealed that concentrating less on English language writing in science classes has been a common trend in classrooms. The

data M=3.22, SD=1.198 infers that the ignorance of writing skills in science classrooms is one of the obstacles in language learning for science students. In addition, students also perceived that the traditional teaching methods at college-level science classes do not give writing skills their due place which leaves students' writing unnourished (M=3.41, SD=1.068). Further, the Pakistani education system was also seen as lacking in the development of creative writing and improving the ability to read and write in English (M=3.69, SD=1.068).

The mother tongue accent was seen as a hurdle for English listening comprehension (M=3.65, SD=1.023). Moreover, they perceived that the provision of audio-visual facilities in science classrooms can help improve the listening skill of science major students (M=3.43, SD=1.255).

Overall findings of the questionnaire reveal that a significant lack of practice and encouragement in science classes shakes their confidence and impedes speaking skills. Overall, the learning environment of science major classes does not support English language learning and all the major skills including reading, writing, listening, and speaking along with vocabulary and pronunciation as well as other extra curriculum activities are not appropriately made part of the learning process.

Qualitative data Analysis

A thematic analysis technique was employed to analyze the qualitative data of the study. Students' responses to open-ended questions revealed several themes relating to their perceptions of obstacles in learning English in science classes. The following are the major themes derived from the open-ended question: "What obstacles do you see in learning English in your science classes? Why do you think so? "

Distraction by Mother Tongue when Learning English

A vast majority of the participants expressed their perceptions about the impact of their mother tongue on English language learning in science classes. Most of the students believed that their mother tongue has a negative impact on English language learning in science classes, and they indicated several factors related to it. Dependency on the mother tongue Students feels difficulty in grasping English linguistic elements such as vocabulary, grammar, sentence structure, and pronunciation due to their over-dependency on their mother tongue. Students see it as causing confusion, tension, and demotivation while listening to a science lecture in English. A student utters, *"I don't understand the lecture until the teacher explains it in Urdu."* Differences in grammar were another issue students perceived as a hurdle in the way of learning English. A student said: *"My mother tongue is the biggest problem for me in learning English I studied English until college, but I can't produce any sentences without errors because of the differences in sentence structures between English and Urdu.* "It clearly indicates a student's frustration in the way of refining his English language due to the intrusion of sentence structure from his mother tongue. Another student's remark: "I think I do not know the principles and rules for English language learning. I have not had any training since childhood that has provided me with a clear picture of the do's and don'ts of learning the English language; it also shows the difference between my mother tongue and English grammar as an obstacle in grasping English grammar.

Lack of Encouragement for Learning English in Science Classes

A lack of support for students' pursuit of English proficiency was the second most

often mentioned subject among students' replies to the free-form question. Students, it seems, would rather learn about science in their own language than any other since they rely so heavily on it. They also expressed enthusiasm for learning English for a variety of reasons, including the fact that it opens doors to future opportunities and is critical to their success in both Pakistani and international contexts. Their responses revealed that despite their strong desire to learn English, they received no encouragement in this regard from the science major environment. Pertaining to this, a participant said

"In the beginning, I was silent in the classroom during the conversation. I was scared to talk. I was nervous, afraid to talk and make mistakes because others may laugh and the teacher didn't encourage me to speak in English".

Another student's opinion, *"We are not encouraged for learning English because there is a common perception that only science subjects with higher results determine our future"* reveals that because of the lack of acknowledgement of English language significance in the science department, students do not receive due encouragement for learning English, and they get demotivated and act passively for learning English. A participant remarked interestingly in this regard:

"Learning English in science classes is not interesting. It is not my favourite subject of mine because it teaches us without any interest in the classroom. Sometimes the practical and experiments are boring because that involves lack of interest and we are unable to write these experiments in our own words",

The collected data and its analysis further add that *the* absence of encouragement for English learning in science classes does not impede learning English only, it also makes students learn their major science subject difficult in which English writing skill is involved.

Discussion

The present study is based on a few anecdotes describing the barriers to English language acquisition among science undergraduates in District Lahore (Pakistan). It was found that many science students lacked proficiency in language, vocabulary, and communication. Their verbal ability was subpar, and their pragmatics skills were inadequate. It was also noticed that Urdu was indeed the predominant language of instruction. When asked about their English-learning challenges, they did not fully comprehend the questionnaire. Similarly, students struggle with writing ability, which is considered an essential productive talent. The findings revealed that several factors significantly impeded the development of writing skills among undergraduate science students like the Influence of the mother tongue, i.e., reliance on Urdu for generating ideas and thoughts, which was the primary factor that hampered writing ability.

Language acquisition is recognized as one of the most difficult activities a person can undertake. Transferring across linguistically disparate systems is a challenging part of second-language acquisition. Above all else, it requires patience, determination, and commitment (Gwebu, 2016). Here, the researchers address various difficulties that science undergraduates have when learning or employing a second language.

The purpose of the present study was to determine Pakistani science students' perceptions of English language learning problems in the classroom. The quantitative and qualitative findings indicate that English language education in the classroom presents a variety of obstacles for undergraduate science majors.

The quantitative data endorse the premise that due to a lack of practice and their habit of cramming; the vast majority of students feel less confident when speaking English. A similar proportion of respondents

believe that writing and speaking skills are neglected in science education. A large majority of students concur that the local accent is an impediment to becoming a good listener and that the education system in Pakistan fails to improve science students' creative writing skills in English. The vast majority say that the necessity of reading for understanding is overlooked in science lectures and that reading skills are not taught to science students.

The current study's findings are consistent with those of Sa'ad and Usman (2014), Mehmood et al. (2019), Elsayir (2018), Syekh and Cirebon (2019), and Ahmad (2011), who all concluded that the dominance of mother tongue, lack of teacher training, students' negative attitudes toward English, traditional methods of teaching, and absence of a language laboratory are some of the causes of poor performance among undergraduates.

According to the qualitative findings, the poor English language proficiency of scientific students is attributable to the traditional teaching methods employed in science classrooms. The results reveal that the dominance of the mother tongue, insufficiently qualified English language teachers, lack of facilities and new innovative methods, discouragement, and ineffective intrusion are some of the factors that contribute to the poor English language learning performance of students. These findings mostly appreciate the work of other researchers in this field, such as Dincer, Ali, and Yesilyurt (2017), Fadda (2012), and Mpofu (2019), which identify the same reasons for low English language performance among undergraduates.

Similarly, reinforcement, incentive, and practice in the English language are essential for encouraging students. It is impossible to overstate the role of motivation in the English-learning process (Ishtiaq, Ali, & Salem, 2015; Mehmood, Tek, Teck, & Perveen, 2019). According to Ali et al. (2021), many science undergraduates in Pakistan attend public colleges. Students' familiarity with lecture-based instruction is one of the reasons students encounter difficulties learning English in college (Fareed, 2020). Encouragement is crucial for the students' learning process because they may easily exchange ideas, generate learning strategies, and solve difficulties linked with learning in the classroom and in society through encouragement (Bicen et al., 2015). Students in Pakistan concur that motivation, encouragement, and the use of creative methods boost the efficacy of English language instruction in scientific classrooms (Ali et al., 2018). According to Teevno 2020, university students who speak Urdu as a first language are unable to adapt to English as a second language and suffer difficulty continuing their studies. In all undergraduate institutions, English courses should only be taught by certified instructors. In general, the students' responses reflected a strong preference for improving English language skills in science classes, and a few questions and responses demonstrated that Pakistani students consider English to be extremely important and useful because it provides science students with several benefits and opportunities.

Conclusions

Based on the findings, we can conclude that unique classroom teaching methods, the importance of reinforcement, the practice of all language skills, and encouragement in the school environment, as well as the improvement of school infrastructure, are required to overcome the factors that lead to difficulties in English language learning for science students. If the English language skills of first-year students are not adequately handled in elementary and secondary schools, the pupils will bring their difficulties to college.

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