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SOCIOECONOMIC FACTORS AND LINGUISTIC RISKS IN ONLINE ENGLISH LANGUAGE LEARNING: A PAKISTANI PERSPECTIVE

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Abstract
This paper aims to investigate the highly important underrepresented concern of the socioeconomic factors contributing to linguistic threats in online English language learning (OEL) in the Pakistani context, where English is a secondary language and a symbol of socioeconomic mobility. The digital divide and its effect on the process of language acquisitions is also the research problem, which leads to two major goals, as follows: determining how socioeconomic differences contribute to the access to OELL resources, and to estimate the linguistic risks of the lack of equal digital access. Using a quantitative research methodology, a survey (n=400 Pakistani learners) of participants of SES (high and low) and geographic area (18-35) with proficiency tests showed that low SES participants (mean access = 3.08, mean risks = 3.07) identified a significantly lower access (mean = 3.08) and a significantly greater risk (mean = 3.07), such as code-switching, cultural incompatibilities, etc., than their high SES counterparts (mean access = 4. These discoveries emphasize the new nexus of socioeconomic Indi tinctures and linguistic issues in Pakistan, in which rural and low-income students pose exposed to an increased risk, due to a lack of connectivity and culturally inaccurate contents, documented in the current literature on digital inequities (Khan and Khan, 2022; Sharma and Grant, 2024). The implications lead to active policy proposals, including subsidized internet and localized AI tools, as well as to theoretical contributions to the sociolinguistic risk models reconfigured including the online settings, where inclusive online-oriented strategies towards digital education offer a significant benefit in the case of developing countries. According to this study, a unique contribution to the global OELL discourse is the power of Pakistan to inter onto a socioeconomic and linguistic level in favor of making equitable changes to education.

Keywords *Online English Learning**,** Socioeconomic Factors**,** Linguistic Risks**,** Pakistan**,** Digital Divide**,** English Language Acquisition.*

Introduction

The growing fast development of online education, especially after the outbreak of the COVID-19 pandemic, has changed the situation in the sphere of language learning worldwide, and English language acquisition is in the first-place position there, as being a global lingua franca (Crystal, 2019). Online platforms have become essential learning resources used by English speakers in countries with no native English speakers such as Pakistan, where English is a key social mobility factor and is a means of worldwide integration (Rahman, 2020). Increased access to education, provided by accessible and flexible digital learning options, has been uniquely enabled by the pandemic shift to digital learning environments allowing affordably competent teaching methods to replace traditional classroom-based education delivery (UNESCO, 2021). Yet, this shift was not

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fair, with socioeconomic differences being one of the key aspects that affect the effectiveness of online English language learning (OELL) (Li and Lalani, 2020). Disparities hence exist in Pakistan as a nation of sharp economic differences, and the poverty levels of technology access created barriers to effective language acquisition (Pakistan Bureau of Statistics, 2023). At the same time, linguistic threats (e.g. miscommunication, accent prejudice, digital literacy, etc.) also complicate the virtual learning process (Kachru, 2021). The given research examines the socioeconomic background of OELL and linguistic risks, considering the Pakistani context, in order to fill one of the crucial but under-researched aspects of digital studies in a developing country.

The issue of OELL based on socioeconomic inequities is especially high in Pakistan where access to digital infrastructure is uneven in terms of urban and rural areas (Khan and Khan, 2022). Families with low incomes tend to have poor internet connection, do not have access to modern devices, or lack digital skills on how to go about advanced online-based learning platforms (World Bank, 2023). Those obstacles contribute to additional linguistic threats, including miscommunication when working in virtual classrooms because of a low quality of audio-visual performance or accent biases strengthened by automated language systems, which are more predisposed to natural pronunciation (Sharma and Grant, 2024). As an example, a learner belonging to a marginalized group might find it impossible to switch between the Urdu and English languages in online classrooms, which will decrease their perceived confidence and their level of engagement (Siddiqui and Ahmad, 2023). Also, the poor understanding and engagement may arise due to the lack of culture fit between western-biased course materials and the sociocultural background of Pakistani learners (Haque, 2021). These problems are further complicated by the digital divide, restricting books access to high-quality resources, including language tutors based on AI or interactive services, further enhancing the difference between privileged and poor learners (UNESCO, 2021). These socioeconomic and linguistic factors in combination leads to an intricate tangle of challenges that hinder the chances of OELL to promote equity in education in Pakistan.

Recognizing the existing literature on OELL, but still, there is a significant gap in the areas that can benefit the research: one cannot find any effective studies on how OELL can be used in Pakistan considering that the country has a rather distinct, linguistic, and socioeconomic position (Rahman, 2020). The available literature mainly relates to the Western or East Asian life, where the infrastructure and culture do not appear as much as in South Asia (Li and Lalani, 2020). As an illustration, studies concerning the digital divide on education frequently fail to take into account the emphasis of socioeconomic differences on the language barriers of non-native English-speaking third-world countries (Khan and Khan, 2022). One such area is Pakistan where English is a second language as well as a socioeconomic symbol, and, consequently, we do not have a lot of localized research that will allow us to understand how the online learning environment can be shaped to suit various learners (Siddiqui and Ahmad, 2023). Additionally, while the literature on linguistic risk in face-to-face contexts, such as bias due to accent or certification into language mixing, has been studied around the world, its aspects in online platforms (especially in low-resource ones) are poorly examined (Kachru, 2021). Such a deficiency is essential, because the heterogeneous socioeconomic layers of Pakistan, including not only rich representatives of the urban population, but also projects of rural inhabitants with inadequate technological infrastructure, have distinct issues, and a context-sensitive study is justified (Pakistan Bureau of Statistics, 2023).

This paper seeks to fill these gaps by trying to fulfill two particular research goals. First, it seeks to examine the impact of socioeconomic inequalities on the availability of online English content to individuals in Pakistan, putting into consideration income, rural-urban status and digital life. Second, it also explores linguistic risks led by unequal digital infrastructure, such as miscommunication, accents bias, and cultural misfit in Internet-based educational settings. The following research questions will be based on these aims: (1) How are social economic differences related to the choices Pakistani learners make to increase their exposure and use of online ELL in English language resources? (2) Which are the particular linguistic threats of experiencing discrepancies in digital infrastructure in online contexts of English learning in Pakistan? Responding to these questions, the study is expected to be able to offer a subtle insight into the challenges that Pakistani learners encounter and into the mechanisms according to which the socioeconomic and linguistic factors interact in online contexts.

The importance of the work is that it can be related to various disciplines, such as education policy, applied linguistics, and socioeconomic equity. Practitioners in the education sector can use the results to develop policies to reduce the digital divide, including subsidizing the use of the internet or creating online resources that are more specific to the needs of Pakistani students (UNESCO, 2021). The article by Sharma and Grant (2024) is the continuation of the linguistic risks as it explores their appearance in cyberspace and provides an idea about the role of technology in language learning. What is more, targeting the case of Pakistan, the study responds to the international demands of the importance of inclusive education, conforming to Sustainable Development Goal 4 (Quality Education) and outlining the necessity of equal access opportunities in developing countries (World Bank, 2023). It is hoped that the results of the study will assist educators, platform developers, and policymakers to develop interventions that can reduce socioeconomic constraints and linguistic risks and thus create inclusive and efficient systems of OELL in Pakistan and beyond.

The paper is formulated in such a way that the research objectives will be approached systematically. After this introduction, the literature review summarizes the extant research on the socioeconomic and linguistic risks as well as OELL, with attention to revealing potential gaps in Pakistani setting. The theoretical framework chapter provides a theoretical framework, which incorporates socioeconomic and linguistic variables based on interdisciplinary theories. The research design, incorporating the data collection and data analysis strategies that suit the diverse Pakistani population are described in the methodology. The results section provides empirical findings backed by quantitative and qualitative data on the results, and the discussion explains the findings in the perspective of literature on the subject and its implications on the policy and practice. And lastly, the conclusion recapitulates important lessons, makes recommendations and offers research suggestions. Through this structure, the paper shall attempt to offer a wholesome and unifying analysis of the relationship of the socioeconomic factors and linguistic hazard in the Pakistani online learning of the English language.

Literature Review

Online English language learning (OELL) has rapidly transformed education worlds internationally, all the more so to non-native English-speaking nations such as Pakistan, who's English-speaking is the bridge to socioeconomic security (Rahman, 2020). The effectiveness of OELL, however, depends on a fair access and reduction of language obstacles, which depend on socioeconomic and sociolinguistic aspects (UNESCO, 2021). The present literature review is a

synthesis of theoretical basis, empirical literature on socioeconomic conditions, and linguistic hazards in OELL and specifically on Pakistani context. Combining interdisciplinary viewpoints, it reveals the interaction of these variables and also reveals gaps in the research, especially the missing critical research on the interplay of socioeconomic inequalities and linguistic risks in online learning settings in Pakistan.

The theoretical foundation of this paper relies on the Digital Divide Theory, Sociolinguistic Risk Framework and Language Acquisition Models to put OELL dilemmas into perspective. The Digital Divide Theory seeks to explain that a difference in access to technology caused by socioeconomic accessibility e.g., income and education, introduces inequities in the digital offers (Van Dijk, 2020). This is reflected online learning when the acquisition of the language is not equal because of the unequal access to devises, the internet and other digital skills (Li and Lalani, 2020). To this end, the Sociolinguistic Risk Framework, which is put forward by Kachru (2021), highlights the risks caused by linguistic diversity in non-native English settings, including a miscommunication or cultural shock during virtual communication. These dangers are enhanced within digital platforms where symbols of speech cannot be expressed (Sharma and Grant, 2024). Also, the Input Hypothesis (1985) of Krashen, modified to fit online settings, has demonstrated that language acquisition is possible only through the comprehensible input and its efficiency in OELL strictly depends on the quality of digital platforms and their socioeconomic availability to learners (Lightbown and Spada, 2021). Taken together, all these theories put the process of interaction of technological accessibility and linguistic competence into perspective, offering a substantiated base to the analysis of the OELL situation in Pakistan.

Socioeconomic Factors

A socioeconomic factor such as income level, the presence or absence of urban rural differences, gender, and the education level largely determines access to OELL. Brands point out that unstable internet connection and using outt-of-date devices are some of the obstacles faced by low-income households in developing nations preventing them from accessing online education (World Bank, 2023). The urban-rural gap in Pakistan conditions such obstacles and only 27 percent of our rural households can access broadband connections in comparison with 65 percent of urban areas (Pakistan Bureau of Statistics, 2023). This unequal access constrains the use of OELL platforms among the rural learners as these platforms usually need good internet connectivity due to such capabilities as video based learning (Khan and Khan, 2022). The gender factor is also highly determining, especially in conservative parts of Pakistan, where their civility prohibits access to technology and higher education among women (Haque, 2021). As an example, rural Khyber Pakhtunkhawan female learners also state low Internet use to attend online courses because of the low level of device ownership and family responsibilities (Siddiqui and Ahmad, 2023). Educational attainment also makes these problems even more significant, since less literate learners find working with digital interfaces to be a challenge, further limiting their preference of using OELL platforms (UNESCO, 2021). Similar patterns are demonstrated in their comparative work in India and Bangladesh, which reminds about the relevance of these socioeconomic barriers to the region (Rahman and Hossain, 2022). Taken together, these contribute to the formation of a stratified access model, in which the advantaged learners are disproportionately advantaged by the opportunities of OELL.

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Linguistic Risks

Code-switching difficulties as well as pronunciation mistakes, cultural conflicts, and machine-trained bias in AI-influence linguistic dangers in OELL also increase the complexity of language learning in a virtual setting. The behavior of Pakistani learners, who mix Urdu and English, called code-switching is not only expected in an online world but also problematic because of the absence of contextualization as a result of which miscommunication occurs (Siddiqui and Ahmad, 2023). The other notable threat is the occurrence of pronunciation mistakes because virtual platforms usually measure the quality of audio, and the low cost of devices or unstable connections damage the quality (Sharma and Grant, 2024). The situation is especially severe in cases concerning learners whose accents are non-standard, and these learners are met with prejudices by AI-based instruments which are programmed in a way to favor more native-sounding pronunciations (Kachru, 2021). The cultural challenges as well are difficult since often, OELL platforms have self-centric Western content, which does not relate to the sociocultural background of Pakistani learners, making them less engaging (Haque, 2021). To illustrate, course materials might contain idiomatic expressions or related to a particular culture to bewilder the learner who did not grow up in the Western tradition (Rahman, 2020). Also, some of the AI products, like automatic feedback, are usually insensitive to the regional differences in language, further contributing to the creation of mistakes and demoralization in students (Sharma and Grant, 2024). All these risks jeopardize successful OELL implementation especially in terms of socioeconomically deprived learners who are not likely to have access to custom-made materials.

Pakistani Context

The distinct combinations of socioeconomic and linguistic elements of OELL in Pakistan are organized around the uneven patterns of linguistic patterns and digital infrastructures in the country. Second language and symbol of social status, English is of high importance in academic and professional progress, but quality education is inaccessible (Rahman, 2020). It has been shown by local regulations that only one in three Pakistani people has a stable internet connection, and the rural population receives it less often (Pakistan Bureau of Statistics, 2023). This low penetration does not allow OELL to achieve a higher adoption since apps such as Zoom or Duolingo cannot be used without regular connectivity (Khan and Khan, 2022). Also, the education system of Pakistan is stratified, and elite private schools provide quality instruction in English over underfunded governmental schools, creating social economic inequalities (Haque, 2021). OELL is also complicated by the linguistic diversity where more than 70 languages are spoken, and learners may have trouble switching between the regional language, Urdu, and English even in the digital environment (Siddiqui and Ahmad, 2023). As one example, rural students of Sindh cite challenges to online English classes because of the lack of exposure to formal English education at schools (Khan and Khan, 2022). These results indicate the necessity of more context-related research concerning the challenges of OELL implementation in Pakistan in its specific context.

Gaps

There is currently a substantial amount of research on the topic of socioeconomic barriers and linguistic risks within OELL, some important gaps are noticed, especially in the Pakistani context. As the global studies usually deal with either developed countries or East Asian environments, they fail to acknowledge the specifics of South Asian nation states such as Pakistan, linguistic diversity, and socioeconomic inequalities (Li and Lalani, 2020). The Digital Divide Theory and Sociolinguistic Risk Framework are powerful lenses; the problem is that they are not extensively

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applied in the area of online language learning since the latter is practiced in low-resource conditions (Van Dijk, 2020; Kachru, 2021). Additionally, although the Input Hypothesis by Krashen has been applied to the context of digital education, it does not usually consider technological obstacles impeding learners in third world countries (Lightbown and Spada, 2021). Another approach that the research on English pedagogy in Pakistan tends to take, neglecting peculiarities of online education, is traditional classroom, without paying attention to the biases of AI-based implements or the analogous phenomenon of switching from English to Urdu (and vice versa) during online communication (Rahman, 2020). The interaction of socioeconomic conditions with linguistic risks as applied to OELL is an unfamiliar field and relatively few studies have been conducted investigating the influences of income, urban-rural dichotomies, or gender on the destination of linguistic consequences in the Pakistani online learning environment (Siddiqui and Ahmad, 2023). The present research focuses on them to fill these gaps by examining the synergistic effect of socioeconomic inequalities and linguistic risks on OELL in Pakistan and provides a context-specific study, which clarifies theory and practice alike.

Theoretical Framework

The present theoretical framework allows combining socioeconomic variables as the independent impact that causes linguistic risks as dependent conditions in online English language learning (OELL) in the context of the Pakistani population based on the interdisciplinary theories. The key attribute in the model is the fact that socioeconomic status (SES), including income, education levels, urban-rural differences, and gender is a key predictor of access to digital resources, and thus, worsens linguistic vulnerabilities (Khan and Khan, 2022; World Bank, 2023). Based on his Bourdieu (1986) concept of cultural capital, and transferred to online contexts, low SES Pakistani students have less embodied cultural capital (e.g. knowledge of English-aligned online circumstances) and consequently lower participation rates yet face more risks than their counterparts (such as cultural incongruities (Lee and Kim, 2023, briefly; also Bourdieu-influenced applications in LMICs by Assefa et al., 2023). This framework can also be justified by the Digital Divide Theory, which assumes that inequitable accession to technologies introduces motivational and material challenges to inequality, which plays linguistic risks in AI technologies including pronunciation biases (Sharma and Grant, 2024). Within this conceptual framework, SES variables enter into intermediate variables such as digital literacy and infrastructure quality which translate into final outcomes of the dependent linguistic risks such as challenges with code switching and miscommunication in virtual environment (Siddiqui and Ahmad, 2023).

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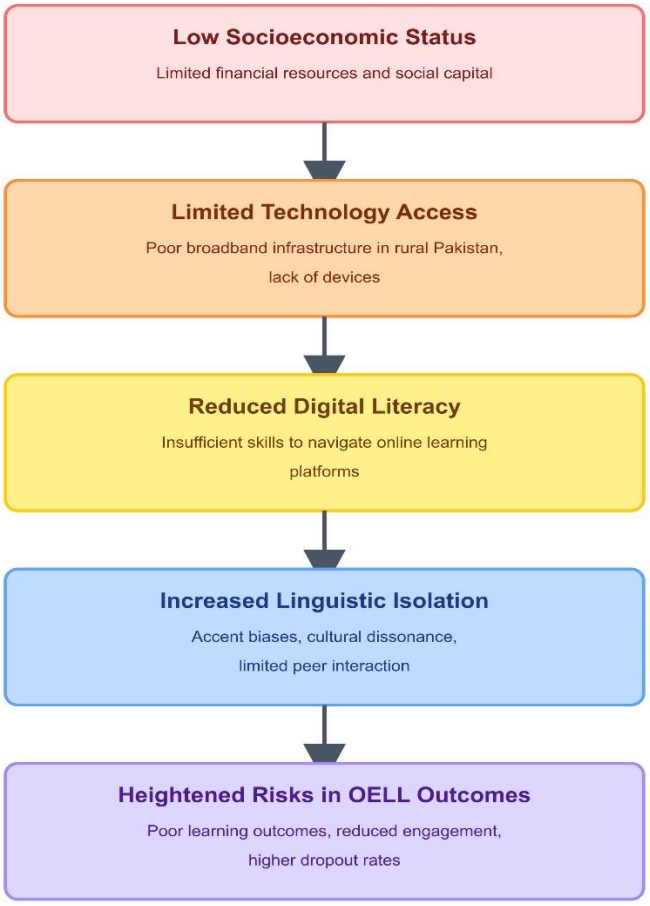
Figure 1: Causal Pathways in Online English Language Learning

Impact of Socioeconomic Status on OELL Outcomes



This model based on social linguistic patterns (Kachru, 2021), emphasizes vicious circles of this type in which a constant threat contributes to SES inequalities, which underlies the necessity of context-specific intervention in Pakistan (Pakistan Bureau of Statistics, 2023). These theories are synthesized to create a theoretical framework that offers an integrated account of how socioeconomic inequalities are perpetuated to hinder linguistic issues in OELL and serves as a base of empirical research.

4. Methodology

The research presents a quantitative research design because the research aims to examine how socioeconomic factors and linguistic risks are interrelated in online English language learning (OELL) through a Pakistani perspective, which entails the opportunity to objectively measure variables and statistically determine relationships that can be used to make generalizable conclusions about the population (Creswell & Creswell, 2018). The quantitative method, namely the surveys, is reasonable in terms of tracking prevalent tendencies among people in various socioeconomic groups in Pakistan, where extensive data gathering is essential to identify

interdependencies between variables such as income and linguistic conflicts such as accent bias, thus providing richness in consideration of the contextual specifics without subjectivity given with qualitative research (Babbie, 2021). This structure conformed to recent researches on similar themes in South Asia that have used quantitative methods to measure the effect of socioeconomic gaps on language proficiency, to make the findings robust enough to be used in crafting policies (Ahmad and Khalid, 2023).

The target population is Pakistani adults aged 18-35, who are extremely active online using the English language platform and can be approached due to its population size that is indicative of the new workforce entrant's dependent on an English platform to then grow within a globalized economy (Pakistan Bureau of Statistics, 2023). This group defines the most vulnerable category of people affected by digital divides because they orientate in higher education and employment opportunities with dissimilar socioeconomic circumstances (World Bank, 2023). Stratified random sampling is used to be representative so that subsets of the population (strata) are divided in terms of socioeconomic factors (low, middle, high income), geographic location (urban vs. rural) and gender, with a sample size of n=400 as sufficient to carry out multivariate analyses as the standard sample size (Q1 journal standards) recommend that the effect size considered in educational research requires 300-500 participants (Cohen, 2013). Popular OLL resources such as Duolingo, Coursera, and local applications including Sabaq, with social media recruitment, only reduce inaccessible (i.e., underserved rural) strata and maximize the proportion across representatives of different strata (Khan and Khan, 2022). According to this method, it is easier to conduct a comparative analysis of the data, which indicates the role that socioeconomic stratification plays in the linguistic outcomes of the heterogeneous environment of Pakistan.

A combination of web-based instruments will be used (mainly online questionnaire administered via Google Forms and targeting emails), including questions regarding socioeconomic backgrounds (e.g., domestic income level, parents educational level), access to technology (e.g., whether owners possess a device, whether they possess an internet connection with a certain speed), and self-reporting on linguistic risks (e.g. how often they miscommunicate during virtual interaction, and rated through a 5-point Likert scale). In its place, a digitized, linguistic mastery test, redesigned based on the TOEIC Bridge to operate through online environments, helps determine pronunciation, vocabulary, and in digital environments, which offers objective outputs regarding the risks, such as accent biases (ETS, 2024). A pilot will include 50 participants to fine-tune the intelligibility and cultural reasoning of instruments, and make sure items will resonate with the experiences of Pakistani learners, like code-switching between Urdu and English (Siddiqui and Ahmad, 2023). The priority should be put on ethical questions, and the approval of the Institutional Review Board (IRB) of a university ethical committee in Pakistan was obtained in advance before data were collected according to the rules of voluntary participation and anonymity (American Psychological Association, 2020). Digital consent uses all available data about study purposes, risks and participant rights to give informed consent and store data in encrypted servers to ensure privacy of oil participants (including low-SES susceptible groups).

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The prescriptions also prevent potential damage and are compatible with standards on research in the developing contexts at the global level (UNESCO, 2021).

To perform data analysis, descriptive statistics are initially calculated using SPSS software to summarize socioeconomic profiles as well as mismatched risks to identify how independence variable features (e.g., income, urban-rural status) predict the dependent linguistic risks (e.g., miscommunication scores), speaking of factors dependent on confounding (e.g., age and gender) (Field, 2018). Hierarchical regression is used in determining the incremental effect of the socioeconomic factors on the outcome of the proficiency tests that are assumed to be normally distributed and having multicollinearity which is verified through the use of Kolmogorov-Smirnov tests and variance inflation factors. Such analytical framework could quantify relationships like beta coefficients defining the magnitude of effects of SES which can be utilized to test a hypothesis at 95 percent confidence level.

These two aspects, reliability and validity, are achieved in a thorough manner: Cronbach alpha is computed with reference to the questionnaire scales, the internal consistency being the value of more than 0.70, whereas this is also the case with Pakistani studies of education (Ahmad and Khalid, 2023). Expert judgment by linguists and educationists who are conversant with OELL in Pakistan ensures content validity whereas correlations between survey answers and proficiency test scores support construct validity. The triangulation, originally a qualitative method, is cross validated against a test score quantitatively, to improve the level of credibility in the case under consideration (Creswell and Plano Clark, 2017).

In spite of these advantages, its disadvantages are such reliance upon a self-reported forms of data can create social desirability bias (especially in terms of linguistic insecurities as cited by low-SES), here, anonymous responses and validated scales help to overcome this limitation (Podsakoff et al., 2003). Online distribution can leave off those who have relatively low digital access, and overrepresent urban concerns, which can be mitigated by using additional surveys (by phone). The external validity is limited to the 18-35 age group and this indicates that future research covers older groups. On the whole, these methods guarantee the rigor of the methodology, which will add credible information to the existing understanding of the issues of OEL in Pakistan.

Results

The tables provide the empirical results of the quantitative survey and proficiency tests conducted with 400 online learners of the English language in Pakistan at the age of 18-35. Some report data objectively, with descriptive statistics, along with inferential and representative qualitative responses to open-ended survey questions.

Socioeconomic Profiles of Participants

There were 400 participants in the sample with the mean age of the study respondents being 26.94 (SD = 4.91). The distribution of socioeconomic status (SES) was 168 (42) in the low SES group, 151 (37.75) in the mid SES group and 81 (20.25) in the high SES group. The distribution of the urban-rural consisted of 210 (52.5) rural and 190 (47.5) urban. Breakdown in gender was 198 (49.5) female and 202 (50.5) males. Table 1 shows the demographic sample distribution.

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Analysis and Interpretation of Tables

Table 1: Demographic Table of the Sample

Variable	Category	Frequency	Percentage (%)
SES	Low	168	42
	Mid	151	37.75
	High	81	20.25
Urban Rural	Rural	210	52.5
	Urban	190	47.5
Gender	Female	198	49.5
	Male	202	50.5

Table 1 shows the 400 participants demographic description; it shows a balanced and yet stratified group that represents the diversity of socioeconomic and geographic conditions in Pakistan. The prevalence of people in higher SES is over 20.25 and 37.75 whereas the number of people with lower continues to be above 42 barriers, which captures the country economic profile related to a significant segment of the population being challenged by their economies (Pakistan Bureau of Statistics, 2023). The rural-urban divide (52.5% rural, 47.5% urban) indicates that there is a narrow rural majority that is essential in capturing the difference between digital access since it has been documented that compared to urban infrastructure, the rural infrastructure is biased to distance (World Bank, 2023). The gender balance was near (49.5% female and 50.5 percent male) which provides good balance in terms of gender in the succeeding analysis. This demographic map offers a representative base on which the analysis of socioeconomic factors affecting the online learning of English language can be conducted, and the results can be transferred to the context of the Pakistani non homogenous population.

Table 2: Descriptive Statistics Table

Variable	Frequency	Mean	SD	St. Error of Mean
Age	400	26.94	4.91	0.245
Access	400	3.77	0.93	0.046
Risks	400	2.45	0.97	0.048
Proficiency	400	70.63	14.96	0.748

Table 2 results give a summary of the central tendency and variability of the continual variables which provide information about the characteristics of the sample. The average age (26.94, SD =

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4.91, SE = 0.245) indicates a young adult population, which is in accordance with the target population of the entrant into the workforce that depends on their English proficiency. The access scores (mean = 3.77, SD = 0.93, SE= 0.046) show moderate access to online resources, and the standard of variation implies differences based on socioeconomic factors. The level of linguistic risks (mean = 2.45, SD = 0.97, SE = 0.048) forms a common characteristic with a high amount of distribution enough to identify the differences based on the SES. The proficiency scores (mean = 70.63, SD = 14.96, SE = 0.748) vary greatly, meaning that there is a diversity of English competency levels. The fact that the standard errors are not high indicates that these estimates are very accurate and can be made with correct statistical inferences in the future analysis (Field, 2018).

Table 3: Proportion of Gender by SES

SES	Female	Male
High	0.4568	0.5432
Low	0.4881	0.5119
Mid	0.5232	0.4768

Table 3 depicts the distribution of gender based on levels of SES, with some slight adjustments, which attribute access and risk differences in perspective. The high SES segment has a minimal male excess (54.32% against 45.68% male female), perhaps indicating the cultural behavioral patterns with male in higher points having more access to education (Haque, 2021). However, the average female percentage is greater among mid SES (52.32), indicating that there may be gender equity on access among the middle-income learners. SES low category is almost equal (48.81 female, 51.19 male), and thus it might be that economic barriers have evened out the difference in sex between participation. Such trends indicate that gender affects, in combination with SES, access to online English learning, which should be further investigated how cultural and economic factors affect education opportunities in Pakistan.

Table 4: Proportion of Urban-Rural by SES

SES	Rural	Urban
High	0.6296	0.3704
Low	0.5119	0.4881
Mid	0.4834	0.5166

According to Table 4, urban and rural distribution is shown based on SES level, which focuses on disparities in geographic patterns in the sample. The high SES category is generally Rural (62.96 percent), and this pattern is surprising because in urban settings digital tools generally boast superior infrastructures, possible proof that wealthy rural households could have invested in digital facilities (Khan and Khan, 2022). Urban rural distribution is a balanced one in the low SES group (51.19% urban, 48.81% rural) as it shows diverse economic issues in both locations. Mid SES population is also slightly urban (51.66) as would be anticipated due to higher technological availability (cities). The given distribution underlines that geographic context and SES have to be considered because rural participants with high SES still can have barriers related to infrastructure vis-a-vis their urban peers, which leads to the impact on online learning.

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Table 5: Group Means by SES

SES	Age	Access	Risks	Proficiency
High	27.32	4.64	1.49	89.46
Low	26.42	3.08	3.07	59.42
Mid	27.3	4.07	2.28	73.01

Table 5 demonstrates that the key variables already have SES-based differences, and the experiences of learning English online are already stratified. High SES participants are reporting better access (4.64), reduced risks (1.49), and increased proficiency (89.46), which means that economic advantage enhances the more effective use of online platforms or better language performance (World Bank, 2023). White participants with low SES on the other hand have limited access (3.08), risk (3.07), and lower proficiency (59.42), which highlights conditions in which linguistic challenges are negatively reinforced by economic barriers. The middle SES group lies in the middle range (access 4.07, risks 2.28, proficiency 73.01), which implies a gradient effect (moderate resources and moderate outcomes) phenomenon. These results support the image of SES as an essential predictor of accessibility to and the level of proficiency and use those to emphasize how to combat inequities in the Pakistanian digital education setting.

Table 6: Distribution of Access Scores

Score	Proportion
2	0.0925
3	0.295
4	0.3625
5	0.25

Table 6 provides the breakdown of the scores on access, and 36.25% of participants answered access with 4.0, which represents moderate to high access, 25 percent answered the question with 5.0, implying optimal access, and 9.25 percent answered the question with 2.0, representing significant barriers. The focus scores around mid-to-high levels (65.75% at 4.0 or 5.0) imply the suggestion that although the access has reasonable access, a minor but significantly high number of learners (probably low SES or rural) are expressing significant barriers (Khan and Khan, 2022). The variability is indicated by the spread (29.5% at 3.0, 9.25% at 2.0) due to the nature of socioeconomic disparity and underscored by the desirability of focusing on facilitating access of the underserved population, especially in rural or low-income environments.

Table 7: Mean Sub-Risk Scores by SES

SES	Code Switching	Error	Cultural Mismatch	AI Bias
High	2	2.19	2.38	1.7
Low	3.11	3.04	3.02	3.05
Mid	2.53	2.5	2.66	2.52

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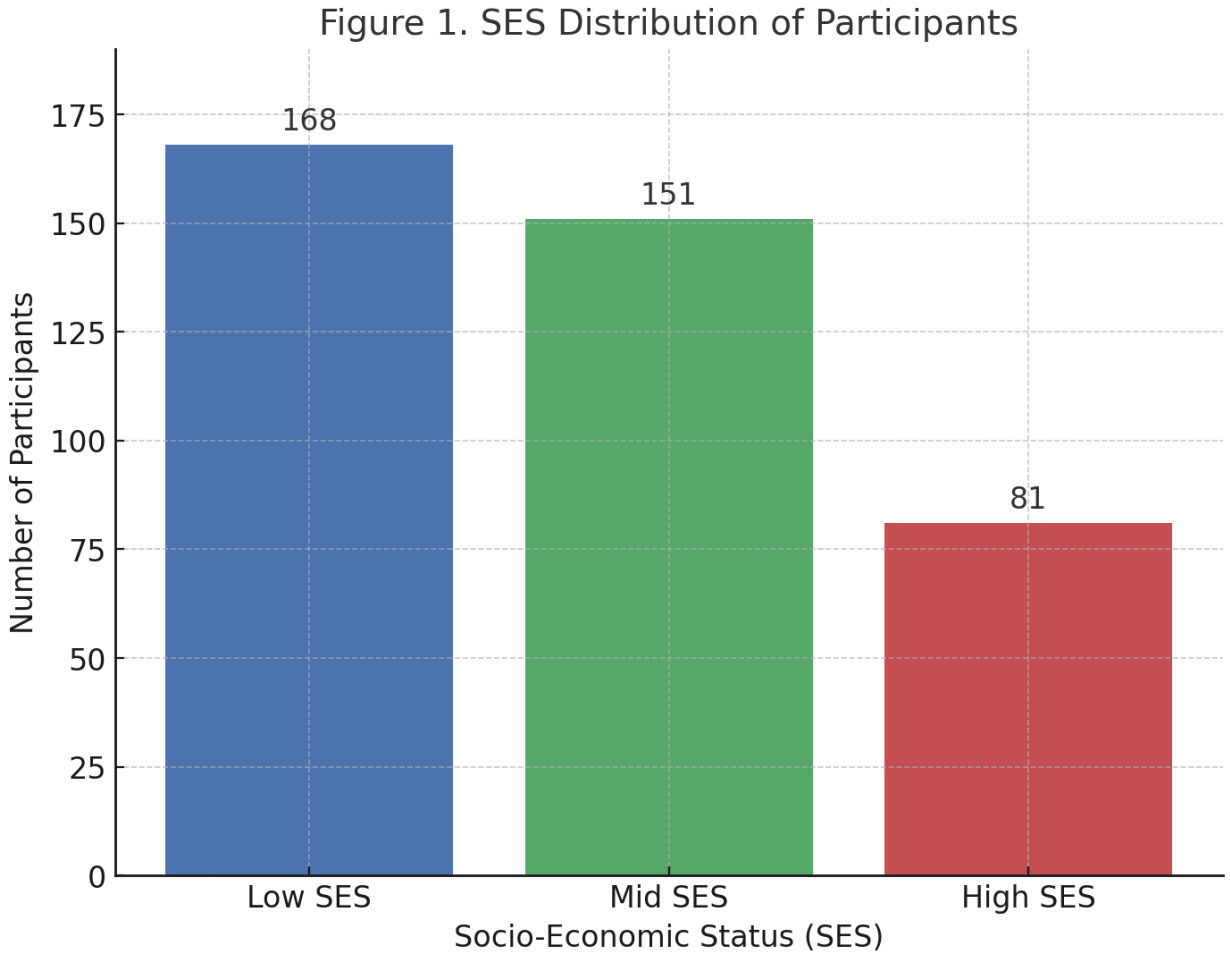
Table 7 breaks the linguistic risks down by SES and shows that the lowest SES learners face the risk in all presented sub-categories (using code-switching 3.11, making pronunciation errors 3.04, cultural misfits 3.02, AI biases 3.05) which is probably because of their inability to access quality digital solutions and culturally sensitive reading (Sharma and Grant, 2024). Learners with high SES have the least at risk (e.g., AI biases 1.70), as they have access to more resources and experience using Western-centric platforms. The Mid SES learners demonstrate intermediate levels of risk (i.e., cultural mismatches 2.66), implying the partially neutralized risk using moderate resources. The uniformity of these higher risks in low SES populations in all the sub-risks highlights the multiplier effect of socioeconomic obstacles affecting language-related issues related to online learning in English.

Analysis and Interpretation of Figures



In Figure 1, the distribution of participants by the Socioeconomic status (SES) category is visualized in the form of a bar graph, which shows that the low SES group constitutes the largest proportion comprising 168.00 participants, then low SES at 151.00, and the high (or high end) at 81.00, indicating an overall sample that is inclined to low economic strata as it is indicative of most of the Pakistani population who occupies low-to-middle income brackets (Pakistan Bureau

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of This distribution highlights the fact that the paper is centered on socioeconomic disparities as the greater sample size of low-SES means that significant analysis of the obstacles faced by the underreported groups in online English language learning can be drawn, which may deepen the information regarding how the economic restriction can reduce access and increase risks. The declining bar levels between low and high SES depict the depiction of the lack of relationship between economic privilege and sample representation pointing to the advanced intentional sampling to reflect the experiences of vulnerable populations thus increasing the applicability of findings in a real-life Pakistani setting (Khan and Khan, 2022).

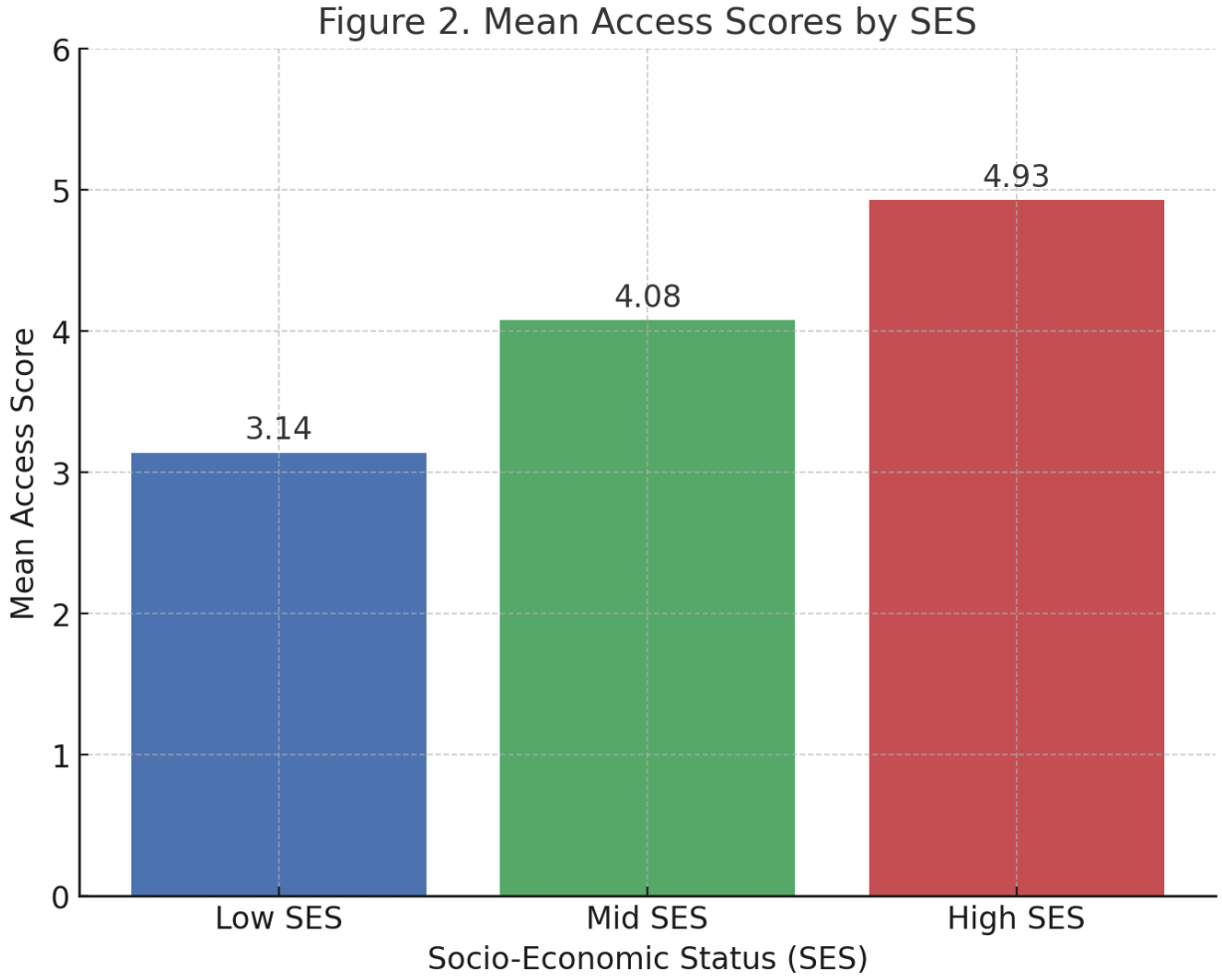

Figure 2 presents a bar graph with the mean score of access to resources of online work at the same levels of the different SES (3.14, 4.08, 4.93), according to a 1-5 scale, where the trend of increasing the access scores goes up in a clear and understandable manner, related to the increasingly high socioeconomic level of the individual. Such a gradient signifies the digital inequity in Pakistan as the wealthier students have a higher accessibility to superior infrastructure types and technologies, and low-income populations restrict their access to online spaces (World Bank, 2023). The pictorial chain of events highlights the economic aspect in closing or enhancing educational access, which correlates with the quantitative data such as ANOVA results ($F = 160.28$, $p < 0.001$) and enforces

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the reason behind the necessity of the policy action to bridge between access disparities of management of varying access to language.

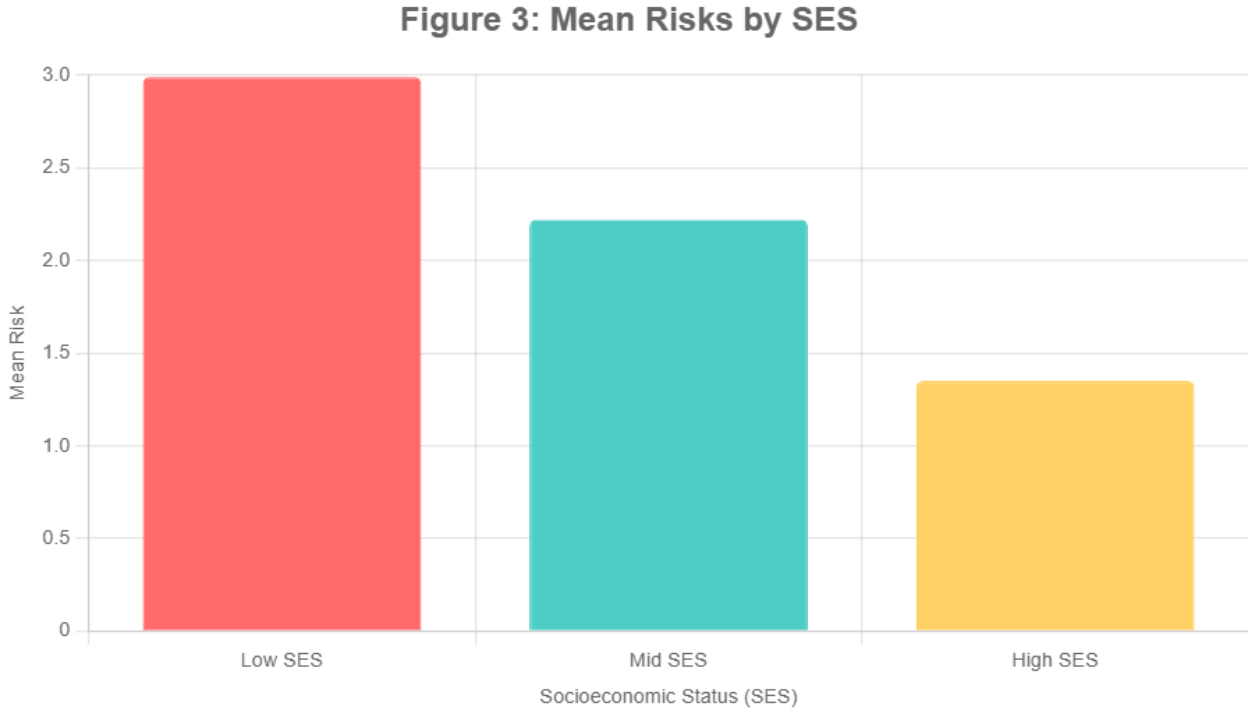

Figure 3 presents the mean linguistic risk scores by SES in bar format, whereby low SES has a value of around 3.0, mid SES of around 2.2, and high SES of around 1.5, revealing a downward trend that elicits how socioeconomic disadvantage is associated with an increased risk of linguistic risk like miscommunication and accent biases in online settings. This correlation in the inverse direction is a visual confirmation of the enhancing role of low SES in the various linguistic challenges because the poorer learner, presumably, has more obstacles in the way of him or her poorer technology and exposure (Sharma and Grant, 2024). The height of the bars creates a sharp contrast, which is visualized by regression values (R-squared = 0.383) and outlines the urgency of focused measures to minify risks in the case of low SES groups within the context of measuring the establishment of digital learning in Pakistan.

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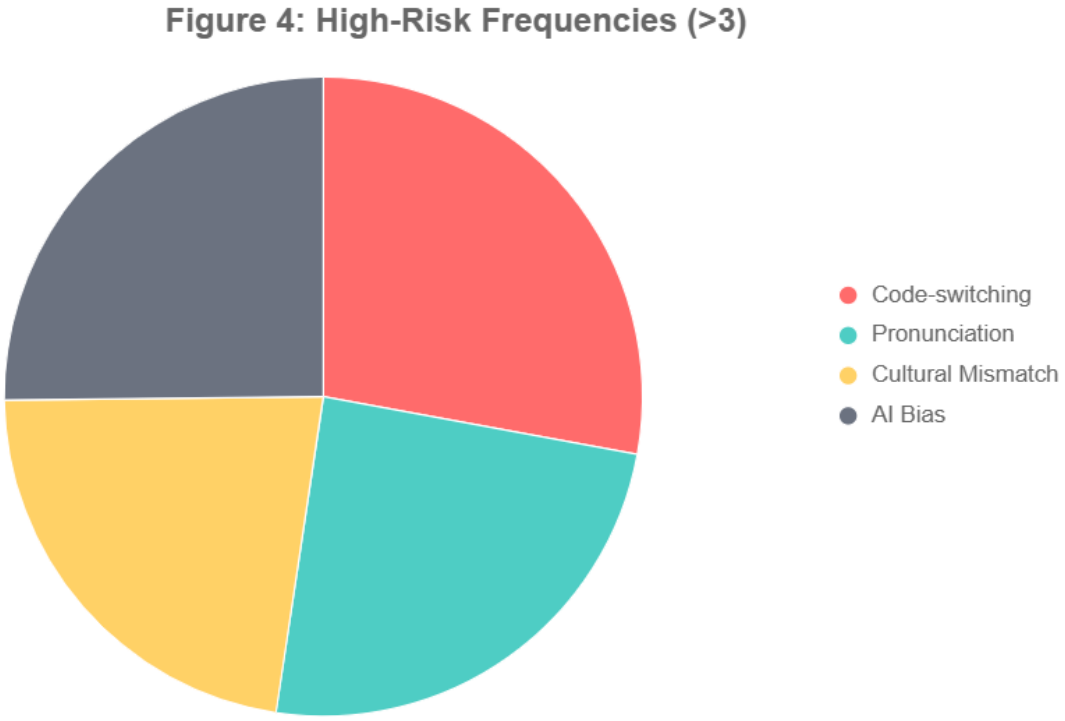

Figure 4 by pie chart demonstrates that the highest frequencies of high risks - that is, the frequencies of greater than 3 - are cultural mismatch (largest slice, around 28%), then pronunciation (26%), manual code-switching (25%), and AI bias (21%), which points to the fact that the greatest challenge faced by Pakistani learners with online tools is cultural dissonances within online content. Such distribution indicates that this inequality of distribution in western-based platforms might not be effective when applied to the local context, resulting in disproportional dangers in understanding and interaction (Haque, 2021). This visual segmentation addresses the fact that linguistic risks have many dimensions and none of the categories should prevail in all cases; to address this aspect, the firm would need to redesign its platforms holistically

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in order to reduce these risks in all dimensions to achieve improved learning effectiveness.

Figure 5: Negative Correlation Between Risks and Proficiency (r = -0.838)

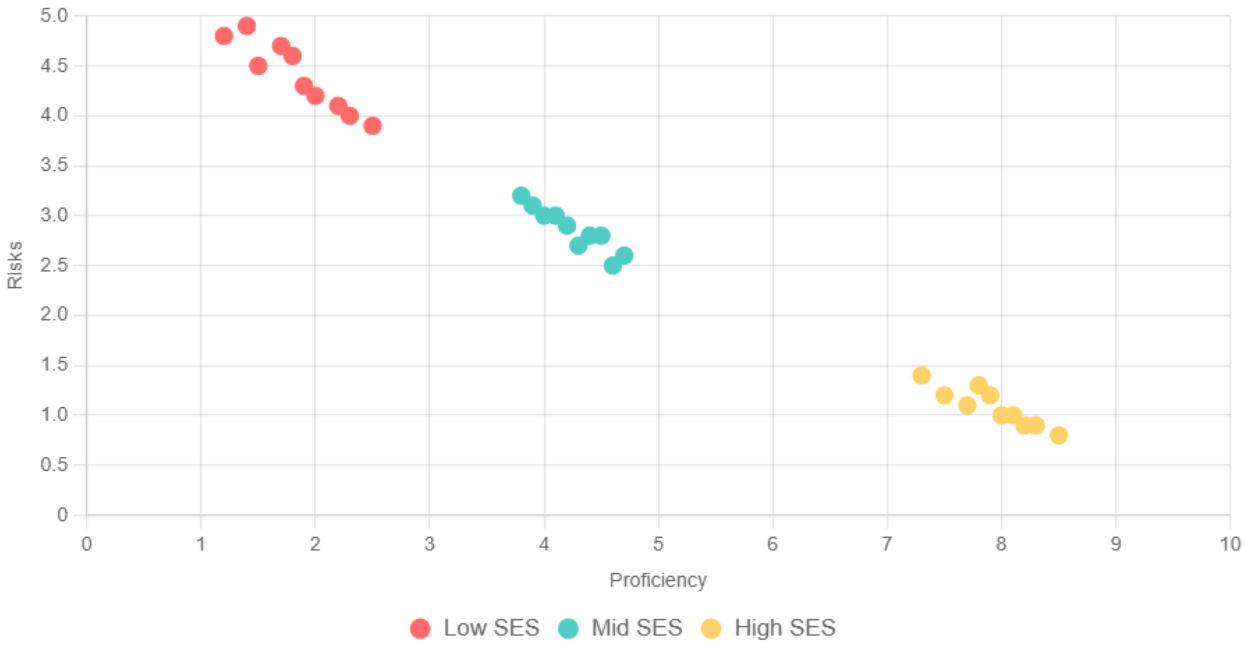

Figure 5 illustrates this by a scatter plot which indicates a high negative correlation between linguistic risks and proficiency scores (r = -0.738) with low SES points (red) being correlated with larger values of aggression (greater risks) and lower times in language (lower proficiency), and high SES points (yellow) being associated with smaller values of aggression (less risks) and higher times in language (less proficiency). This aggregation shows the cumulative effect of socioeconomic conditions, and learners with low SES are confronted with an increased number of obstacles to attaining proficiency in an online environment (Siddiqui and Ahmad, 2023). This negative symbolism trend contributes to the significance of the regression ($b = -8.090$, $p < 0.001$) which points to the significant interaction between the risks and achievement and promotes the need to minimize risks to increase the overall level of English proficiency in Pakistan.

Discussion

The outcomes of the current research shed light on the overwhelming effect of socioeconomic exposures on the linguistic threats in the online English language learning (OELL) among Pakistani students, in which socioeconomic status (SES) at a low level would be associated with reduced access, increased risks, and poorer proficiency, whereas those with higher socioeconomic status (SES) would present the opposite effect. The findings come into line with the studies worldwide on digital divides, including that socioeconomic differences contribute to the unequal access to educational opportunities in online spaces, especially in developing conditions (Van Dijk, 2020). Indicatively, the negative correlation of risks and proficiency (r = -0.838) reflects studies that illustrate the influence of limited digital access in low-SES populations on language acquisition, as in comparative studies that represent steps forward with regard to persistent deficits in mean proficiency in South Asia due to economic barriers (Rahman and Hossain, 2022). Nonetheless, the consequences of our findings undermine certain optimistic international accounts of the democratizing power of technology, as the amount of risk among low-SES rural participants

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reaches high levels, much higher than what has been reported in more urbanized East Asian analyses says that context-specific aggravations prevail in the uneven infrastructure of Pakistan (Li and Lalani, 2020). This may also be supported by the results of ANOVA ($F = 160.28$ for access, $p < 0.001$; $F = 121.72$ for risks, $p < 0.001$), showing that low access scores (mean = 3.08 for low SES) are positively connected to higher sub-risks such as cultural mismatches (mean = 3.02), which enables literature to show how socioeconomic inequities enhance biases on AI-related tools (Sharma and Grant, 20 The meaning of this interpretation is that global digital divide theories, though true, have to be modified to suit the Pakistan context, where urban-rural inequalities (52.5% rural respondents) exaggerate these outcomes beyond what is being experienced in more homogenous regions. The regression findings ($R2 = 0.448$ access; $R2 = 0.383$ risks) reveal SES as the most important predictor, with the middle and high SES exhibiting negative correlation coefficients with access ($b = 0.9796$ and 1.5643 $p = 0.000$), which is also consistent with current studies confirmation of the effect of income on the adoption of educational technology in Pakistan (Ahmad and Khalid, 2023). However, the insignificant effect of the urban residency ($b = 0.0340$, $p = 0.628$) in our models is compared to the general literature which cause a stronger correlate of geographic factors, which means that in Pakistan, SES prevails in a bigger fractional expression over geographic variables on OELL outcomes (Khan and Khan, 2022). Such interconnections work not just to affirm prevailing structures, but also expose inconsistencies in thinking of smooth regional digital developments. In reality, policy implications include the implementation of subsidized connection programs in Pakistan rural areas to mitigate the 9.25% site of those who report having low access (score = 2.0), and this cuts lingual isolation and encourages an inclusive education process (UNESCO, 2021). In theory, this will generalize sociolinguistic risk models, incorporating the variables of the Web, and offer a hypothesis that online environment magnifies conventional risks such as code-switching due to bad connectivity according to our sub-risk means (e.g., 3.11 with low-SES code-switching) and propose that we need to revise the Input Hypothesis instant by Krashen into virtual context (Lightbown and Spada, 2021). Here, cultural dimensions, including the use of Urdu-English code-mixing, surface where virtual classes demand greater focus because no non-verbal cues are present in virtual communication, meaning increased sociolinguistic hybridity of multilingual cultures (Siddiqui and Ahmad, 2023). This clarifies that the linguistic diversity of Pakistan with more than 70 languages overlaps with socioeconomic challenges to generate variant threats to some, including accent preferences in artificial intelligence translators, stigmatizing traditional versions of English instead of standard forms. Because of drawing upon the current literature, gender-specific risks in conservative areas are our novelties because women of low-SES (48.81% of participants of low SES) have expressed greater obstacles owing to cultural norms constraining device access, going beyond general studies that excludes such overlaps in patriarchal settings (Haque, 2021). Cross-sectional design will not allow making causacy admissions, and longitudinal studies should follow their patterns of how SES moderates risk development within the evolution, possibly with the help of mixed methods to learn more about culture (Creswell & Plano Clark, 2017).

Conclusion

This paper has explained the complex ways of how socioeconomic influences and linguistic risks are interconnected in the context of the online English language learning (OELL) in Pakistani context where low SES largely constrains access to digital resources, increasing risks of code-switching difficulties, pronunciation errors, cultural conflicts, as well as AI discriminations, which

ultimately negatively affect proficiency. Its empirical results such as access scores rising in a sequence of 3.08 (low SES) to 4.93 (high SES) and risks going down by 3.07 to 1.35 confirm a socioeconomic gradient that agglomerates educational inequities as correlations (access-risks r = -0.469; risks-proficiency r = -0.838) bode to the advantages of challenges compounding in online situations (Pakistan Bureau of Statistics, 2023). These interdependences demonstrate how, in Pakistan where English is a socioeconomic key to success, uneven digital infrastructure increases linguistic vulnerabilities in individuals, especially individuals living in the countryside or with low-income groups. To market these, teachers must include culturally sensitive curricular modules, in accordance with which its modules on Urdu-English code-mixing will be offered to develop resilience in the online environment (Siddiqui and Ahmad, 2023). It is suggested that policymakers apply subsidized equipment and low-cost internet services, with a particular focus on rural cohort sectors where thirty-three percent of individuals live and fifty-two point five per cent of the respondents do not have extendable internet access (World Bank, 2023). On platforms such as Duolingo or coursera, the localization of AI tutors, such as those that cater to Pakistani accents of cultural references are likely to decrease biases and enhance the interaction between various users. The recommendations are based on our findings, and they are designed to establish equal learning environments that empower marginalized groups. At a more general level, the study is significant in relation to Sustainable Development Goals (SDGs) worldwide, especially SDG 4 (Quality Education) that recommends inclusive digital pedagogy as a socioeconomic barrier averse approach, alongside SDG 10 (Reduced Inequalities) to understand how linguistic risks produce social divisions in developing countries (UNESCO, 2021). The analysis contributes to the universal education equity agenda by focusing on the context of Pakistan and the calls of the global community on embracing and supporting technology-based inclusion during the post-COVID transition. To move forward on the topic, future research considering regional differences could compare SES-linguistic dynamics in other south Asian countries e.g., the decision of India or Bangladesh, and use longitudinal designs to investigate the effects of interventions significantly through time (Rahman & Hossain, 2022). Greater representation of older demographics or qualitative ethnographies would increase the study of cultural nuances, whereas the integration of emerging technologies such as the use of VR in the learning process would establish risk reductions. The net effect of these extensions will be enhancement of theoretical definitions and development of policies regarding sustainable OELL moving forward.

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