

Role Of Language In E-Learning: Comparative Study Of Two Languages Using Quality Approach

Dr. M. AMAAD UPPAL¹, ZUNAIRA ZAHID²

¹GC University Lahore, Pakistan Katchery Road Lahore 54000, amaad.uppal@gcu.edu.pk

²GC University Lahore, Pakistan Katchery Road Lahore 54000, Zunaira979@gmail.com

Abstract

Learning through the use of digital media has grown at a rapid pace in the recent years, therefore, use of media has been adopted in many learning programs. The success, however, of these e-learning programs shows varied results. This is because most of these systems have been developed keeping in view the latest technologies rather than educational principles and learners' perspective. Education is a service; however, very little research addresses issue of quality of service in educational environment. Therefore, it is important to design a system for e-learning which encompasses the aspects of overall quality perception leading to user satisfaction. In our paper, we have used E-Learning Quality model (Uppal, Ali, & Gulliver, 2017), which has been developed to assess perception of holistic service quality. Language has been used as a moderator since in any educational environment learning content is the key, and the language in which this content is delivered is vital. We believe that availability of educational material in local language has significant impact on overall satisfaction of the learner since it reduces the cognitive load of learner. Through Structured Equation Modeling, Exploratory Factor Analysis (EFA) is conducted to investigate the reliability and validity of the measurement model.

Keywords E-Learning; Language; E-Learning Quality (ELQ) Model; Structured Equation Modeling.

1) Language in education

In the educational context, language is important for comprehension and making use of knowledge. Tavoosy & Jelveh (2019) and Vygotsky (1978) viewed language as a powerful development tool that helps in benefiting from instruction. In this sense, a language is a tool for learning and an aid to understanding. As such, language acts as a vehicle for educational development and is important for the acquisition of knowledge (Masek et al. , 2021; Lundberg, 2018).

Over the past three decades, in elementary schools, there has been strong advocacy for conducting instruction in the local languages; assuming a higher level of literacy in their mother tongue than in any other second language (Tupas, 2015). The proponents of the use of mother tongue in education believe that the use of the local languages in school builds self-confidence in children, and it also provides them with opportunities to learn more as they grow (Alaro & Kebede, 2020).

1.1) Mother tongue and learning

When children start attending school, there are so many changes that they have to accustom themselves to. The classroom and the classmates are all strangers and so is the teacher who is the centre of instruction. Learning methods are different from how they learned at home, which means that children need to initially learn how to learn (Skutnabb-Kangas & Heugh, 2013). It is argued that bringing in an abrupt change to the child's language at this early stage complicates the learning environment further. Accordingly, multiple types of research have highlighted the significance of promoting mother tongue education in primary schools (Chicoine, 2019; Lin, 2015). This is considered as an impeccable approach to promote native language in order to prepare children for their further educational path and training of life (Cummins, 2001).

The leading aim of learning, in the early years of one's education, is to develop basic literacy skills include reading, writing, and arithmetic (Alaro & Kebede, 2020). When a learner is able to understand and speak the language that is being used to instruct them, they are able to develop their reading and writing skills much faster and in ways that are more meaningful (Ball, 2010).

The impact of learning in the mother tongue has remained a hot topic of debate in pedagogical literature; with arguments both for and against the use of the mother tongue in early education (Nyika, 2015). Despite some critics, there are strong pedagogical arguments in favour of the use of the mother tongue in education.

Studies, for example, highlight that children accomplish greater success in education when they study in their mother tongue, especially

within the first years of their primary schooling (Tupas, 2015; Bamgbose, 1976). Students who learn in their mother tongue acquire higher levels of self-confidence and academic success. 'Language', in literature, is seen as an important tool in transferring cultural values to future generations since language is a form of expression within a society, which means that the teaching of language is important for all societies in enabling them to sustain their cultural dimension. The local language is a, therefore, a form of expression for the local society. It is an indispensable cultural value that enriches the social sphere and facilitates social expression from poetry to novels, from music to other kinds of art (Edwards, 2010).

2) Literature review

2.1) Education in mother tongue worldwide

When learners are taught in their mother tongue, there is a higher probability that they engage in the learning process. The interactive learner-centered technique that is recommended by most educationists also works best in environments where the learner is fully proficient in the language of instruction. This environment allows learners to come up with focused suggestions, ask relevant questions, gain clarifications, answer questions effectively, and communicate their newly acquired knowledge with enthusiasm and ease. Being taught in their native language, i.e. the language that they readily identify with makes it easy for learners to have confidence which assists learners to affirm their cultural identity (Mahboob & Lin, 2018).

Linguistic diversity is considered as a significant characteristic in some countries (Kjær & Adamo, 2016). Asian and African countries specifically are linguistically diverse, i.e. where language diversity is higher than the rest of the world (Lin, 2015). Since the 1960s, education systems have focused increasingly on multicultural perspectives, in terms of diversity, which has fostered challenges in diversified nations by hitting the systems of their education (Rhoads & Valadez, 2016). A number of countries have implemented this multicultural perspective by introducing a focus on using the mother tongue within their education systems.

A lot of research has highlighted that a strong identity can be formed as a result of receiving a mother tongue education (South & Lall, 2016). Moreover, researchers have shown that learning in the mother tongue up to six to eight years of age, is superior to use of a second or foreign language (Opoku-Amankwa, Edu-Buandoh, & Brew-Hammond, 2015). In the Philippines for example, use of the mother tongue has been proven to enhance student cognitive ability, general language, educational skill, socio-cultural improvement and effortless ease when learning other languages (Analytical, 2015). Similarly, in South Africa, educationist favour, for the first three years of schooling, that education should be taught in their native language, after which they can switch to other foreign/international languages; i.e. to enhance a radical change in learning patterns (Brock-Utne, 2015).

By considering numerous examples across the world, it is evident that the mastery of one's mother tongue, before learning other various international languages, goes a long way to producing world-class students and dynamic

human capital (Tupas, 2015). Furthermore, mother tongue-based bilingual or multilingual educational policies should be fostered, in which the mother tongue should be given priority which in turn leads to improvement in second languages as well (Trudell & Young, 2016).

2.2) Understanding the Benefits of the Mother Tongue

The benefit of providing an education in the mother tongue is manifold. Providing education in the mother tongue aims to make the education system more equitable, and accessible (Gfeller, 1999; Darling-Hammond, 2015). There are plenty of pedagogical and ideological justifications, as teaching in the mother tongue results in strong pedagogical gains for both the children and learners. Arguments concerning advantages of using the mother tongue in education are not only limited to pedagogical aspects of education, as they are also associated with sociological and psychological advantages as well (Lin, 2015).

The use of mother tongue in primary schools lessens the burden on teachers, and the learning experience becomes more natural; as it reduces the stress for both parties. Owing to this, the teacher is able to get more creative and innovative when coming up with learning and teaching materials, which means the chance of a successful learning outcome is improved (Tupas, 2015).

2.2.1) Increasing the Scope of Understanding

A child's mastery of the mother tongue is a strong predictor of his/her potential in second language development. A solid foundation in one's own language usually helps students

develop stronger concepts in other languages, resulting in better-defined literacy abilities. Thus, due to mother tongue vocabulary, a well-prepared child could master other languages in school, and throughout his/her educational life (Cummins, 2000; Opoku-Amankwa, Edu-Buandoh, & Brew-Hammond, 2015).

2.2.2) Less Cognitive Load in Mother tongue

In primary education, use of instructions and concepts explained in the mother tongue, develop the mental ability of children, and lowers unnecessary cognitive load (Baker, A parents' and teachers' guide to bilingualism (Vol. 18), 2014; Barac & Bialystok, 2012). In relation to difficulty in language, it is suggested that potential for information overload exists, evidenced by the fact that non-native speakers read at a slower speed than the native speakers read (Chambers, 1994).

2.2.3) Maintaining Quality of Education

In education, the significant factor is to acquire quality education. Literature implies that this can be supported by teaching academic content in the student's first language; as this significantly supports learner comprehension. According to previous literature, this argument is well established by numerous researchers, as minority groups prosper more after acquiring primary education in their mother tongue (Manan, David, & Dumanig, 2016). There are numerous benefits of providing basic education in the mother tongue (Tsui, 2017), however, the mother tongue is usually not deemed to be an international language; especially for many developing countries. Accordingly, most learners will have to learn another language to

allow them to obtain higher education and/or increase employment opportunities.

2.3) Shift of trend towards Bilingualism

Baker (2011), points out that bilingualism incorporates two languages; hence those people who use two languages in their routine life are bilinguals. Education delivered in more than one language is described as bilingual education (Kaya & Aydin, 2013). In the 21st century, a bilingual education system, which uses of an international / business language in secondary and further education, is increasingly considered the only practical way to ensure that essential transformations in children and adults occur; in order to facilitate learners within an international learning and business space (Yusupova, Podgorecki, & Markova, 2015).

2.4) Education in the English Language

Literature implies the dominance of the English language as the medium of communication (Mirhosseini & Ghafar Samar, 2015), with English used internationally as the language of choice in teaching and research domains; i.e. the primary alternative to one's mother tongue (Flowerdew, 2015). The use of the learner's mother tongue at their start of school enables the learner, and the teacher, to have a more intimate bond. The mainstreaming of internationalisation, however, aims to create a better quality of higher education and/or ensure a high level of competencies in both staff and students. The international dimension plays an increasingly central role in higher education (De Wit, 2015), and internationalisation is seen as a strong indicator of education quality (Beelen & Jones, 2015). For instance, in Europe, there has been an increase in a number of Master programs which are taught in English. In 2002,

560 Master programs were offered in English, whereas, in 2012 the number increased to 6,800 (Wiseman & Odell, 2014).

According to a private research, carried out by the British Council, students have acknowledged that education in the English language improves their proficiency as well as enhances their grasp of the content (Wiseman & Odell, 2014). Multiple researchers have identified that internationalisation and globalisation are impacting the language learning. Mother tongue has been learned at home, but the use of an international language is increasingly important for getting jobs, i.e. to acquire more opportunities in MNC's (Multi-National Companies) (Hudley & Mallinson, 2015). Therefore, we argue that learning should be done with a blend of both native and international language; because most of the books and written contents are not available in the local language, and formal examination systems are normally in English. Accordingly, learning bilingualism is important (Opoku-Amankwa, Edu-Buandoh, & Brew-Hammond, 2015).

English cannot be fully eliminated from the educational system in most countries, because English is considered synonymous with a high quality/standard of learning, ultimately leading towards international connection. Developing countries especially those with scarce resources and/or with very little attention on the educational quality will impact a perception of lower standards if they teach all content in native languages. Owing to this, an intellectual strategy would include the incorporation of mother tongue in early childhood education (i.e. primary schooling) but in higher education, and / or practical / business life, international language usage in

parallel with the use of the mother tongue is of immense significance.

3) Theoretical Model & Hypothesis

There is a number of benefits that are associated with the use of local/native language for learning in the literature. The goal of education, especially as part of e-Learning, is to impart learning in the form and language that is most convenient and easy for the learner to understand. Currently, the majority of the e-Learning resources are available only in English. Such content is challenging for learners who do not speak English as their first language, accordingly, we formulated the hypothesis.

Our research hypotheses state; when moderated by language (local/international),

H1: "Reliability" is positively associated with students' perception of e-learning quality.

H2: "Assurance" is positively associated with students' perception of e-learning quality.

H3: "Tangibility" is positively associated with students' perception of e-learning quality.

H4: "Empathy" is positively associated with students' perception of e-learning quality.

H5: "Responsiveness" is positively associated with students' perception of e-learning quality.

H6: "Learning Content" is positively associated with students' perception of e-learning quality.

H7: "Course Website" is positively associated with students' perception of e-learning quality.

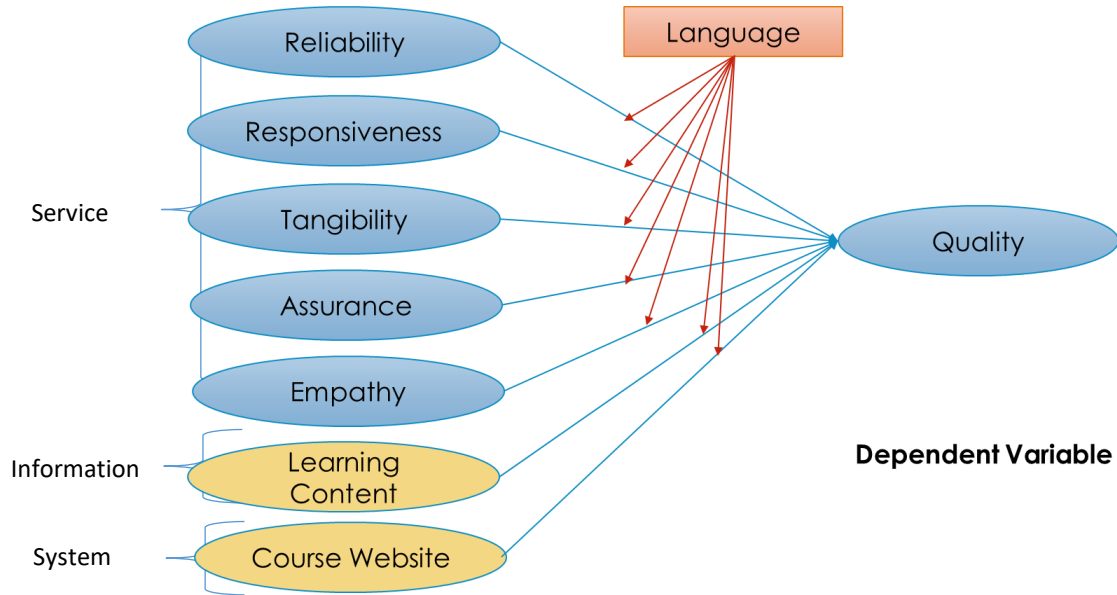


Figure 1. Research model to test language moderation

To validate this hypothesis, we will incorporate the E-Learning Quality (ELQ) model (Uppal, Ali, & Gulliver, 2017), yet consider the moderating impact of language on each (see figure 1). By assessing quality in terms of language user, we are able to see: i) the total impact of language use on quality perception; ii) whether language use impacts perception of all quality dimensions, i.e. service, information and system quality.

4) Methodology

The present study explores the impact of ELQ dimensions on e-learning quality along with

the moderating effect of “Language” in higher education sector. Particularly, quantitative approach has been used in order to design the methodology and data collection. To validate the model, we collected data from 528 students from two local universities, in Lahore (Pakistan). Demographics detail of respondents can be seen in table 1. We split the sample size into two equal halves. We asked half the students about their perception of e-learning if the material was presented in the English language. Similarly, we asked the other half about their perception of e-learning experience, if it was presented in the local language (Urdu).

Table 1. Demographics details of all respondents

Gender	Male	51.1% (270)
	Female	48.9% (258)

Program of Study	BSc/BBA Honors	14.4% (76)
	MBA	17.8% (94)
	EMBA	30.7% (162)
	BSc Engineering	36.8% (192)
	BSc Sciences	0.8% (4)
Household Income (Monthly)	Below Rs. 20,000	10.2% (54)
	Rs. 21,000 to Rs. 50,000	22.0% (116)
	Rs. 51,000 to Rs. 100,000	42.0% (222)
	Above Rs. 100,000	25.8% (136)

4.1) Analysis and findings – Urdu Language Content

A questionnaire was used to collect participant data, which consisted of two sections. The first part had questions related to demographic data. In the second section, questions related to the dimensions of service, information and system were asked. A five-point Likert scale was used for all questions in section two. The questionnaire was distributed to students in different classes at two leading public universities in Lahore, Pakistan. University student (undergraduates, postgraduates, and executives) were used to collect data. These students were enrolled in BSc Applied Management, BBA honours, MBA, EMBA,

BSc Sciences and BSc Engineering programs. A total of 264 students, most of whom had previously had exposure to e-'Learning Content', participated in the survey.

4.1.1) Reliability and Validity

To check the reliability of the scale we conducted Cronbach Alpha (Cronbach, 1951; Nunnally, 1978) to measure internal consistency. The extracted factors' Cronbach alpha values for our quality factors are shown in table 2. All alpha (α) values are greater than ($>$) 0.70, which implies factors are highly correlated and interchangeable (Jarvis et al., 2003).

Table 2. Scale Reliability

Factor Label	Number of Items	Cronbach's alpha (α)
Assurance	4	0.838
Reliability	5	0.927
Responsiveness	4	0.916
Empathy	4	0.913
Tangibility	4	0.869
'Learning Content'	6	0.839
Learning Quality	3	0.988

Course Website	4	0.881
----------------	---	-------

4.1.2) Exploratory Factor Analysis (EFA)

To see if the observed variables adequately correlated, i.e. met reliability and validity criteria, we conducted an EFA using Principal Component Analysis, with Promax rotation (see table 4). We selected Promax for two reasons, first because our sample size was adequately large, i.e. n=264. Secondly, Promax is suitable when multiple factors are

correlated. The cumulative variance of the eight factors was 75.646%, and all extracted factors had eigenvalues above 1.0. All the commonalities for each variable were significantly high, i.e. all were above 0.300 - with most being above 0.700. The Kaiser-Meyer-Olkin and Bartlett’s test for sampling adequacy was significant, showing that the chosen variables were sufficiently correlated (Table 3).

Table 3.KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.735
Approx. Chi-Square	8052.90
Bartlett's Test of Sphericity	Df
	595
	Sig.
	.000

Two questions of “Learning Content” needed to be dropped, as one of them, was cross loading and had loading values below 0.5 (Hair, Black, Babin, & Anderson, 2010). The seven factors, which were extracted in the pattern matrix (see Table 4), however, used for further analysis. Terms measuring the same construct exhibited high construct loadings, i.e. suggesting adequate convergent validity. According to Hair et al. (2010), the minimum threshold value recommended for a sample

size of approximately 255 (n=264) is 0.350. Since all loaded values were above 0.50, it confirms that the factors had sufficient discriminant validity, and no unexpected cross-loading occurred (Table 4).

After exploratory factor analysis, we used SEM (Structured Equation Modeling) to prove the convergent and discriminant validity of the extracted constructs. Accordingly, confirmatory factor analysis was performed using AMOS.

Table 4.Pattern Matrix

Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization

	Component							
	1	2	3	4	5	6	7	8
Reliability Q4	.909							
Reliability Q1	.906							
Reliability Q3	.900							
Reliability Q5	.883							

4.1.3) Confirmatory Factor Analysis (CFA)

After testing the scale reliability, convergent and divergent validity was tested. Convergent validity can be established if two indicators correspond to each other. Divergent validity is the degree to which two dissimilar constructs

can be easily differentiated. Construct reliability is the measure used to check the reliability of the extracted constructs, the threshold value is 0.7, yet in our case CR for all eight extracted factors is above 0.90 (see table 5).

Table 5. Discriminant and convergent validity

CR	Constructs	LQ	ASR	EMP	RES	REL	TAN	CW	LC
0.989	E-learning Quality	0.983							
0.835	Assurance	0.018	0.748						
0.919	Empathy	0.124	0.017	0.861					
0.917	Responsiveness	0.020	-0.004	0.070	0.856				
0.929	Reliability	-0.077	0.050	-0.024	0.007	0.851			
0.871	Tangibles	-0.007	-0.106	-0.015	0.166	0.109	0.793		
0.846	Course Website	0.055	0.099	-0.004	0.062	0.307	0.117	0.764	
0.857	'Learning Content'	0.359	0.022	0.209	-0.069	-0.049	0.072	0.004	0.722

All fitness values are within acceptable criteria limits, depending on the test, hence implying a good model fit (see table 6). A Chi-square/df value between 2.0 and 5.0 was considered acceptable (Hau, 2010). In our research, the chi-square/df value was equal to 2.434. Our

RMSEA value is 0.074, and our CFI and NFI values are 0.908 and 0.854 respectively; demonstrating a good model of fit, thus supporting the results and validating the proposed ELQ model.

Table 6. Goodness of Fit Statistics

Index	Value	Criterion
Chi – Square /Df	2.430	2.0 – 5.0
RMSEA	0.074	0 – 0.1
CFI	0.906	0 ~ 1
NFI	0.851	0 ~ 1

4.1.4) Results

The ELQ model, see chapter 4, has been tested to measure the perception of e-learning quality – when used with content in the Urdu

language. Table 6.7 gives the model summary, where R is the multiple correlation coefficients that signifies the correlation between the dependent (DV) and independent

variables (IV) (i.e. $R=0.410$, see table 7). R Square is the amount of variance in the dependent variable, i.e. e-learning Quality that is explained by the independent variables (reliability, assurance, tangibility, empathy, responsiveness, learning content and course

website), which is .168 or 16.8%. This means the seven independent variables explain 17% of the variance in e-learning quality. Sig i.e. 0.00 denotes that the variance explained is statistically significant.

Table 7. Model Summary

Model	R	R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
1	.410	.168	.80639	.168	7.373	7	256	.000

a. Predictors: (Constant), ASR, EMP, LC_Eng, TAN, CW, REL, RSP

Table 8 gives the estimates and the significance level of the IV and DV. In the case of Urdu, language use only impacts the 'Learning Content', variable with $\beta = .390$, $t =$

6.635 and $P < 0.001$. Relationship with rest of the other six independent variables was found not to be significant.

Table 8. Regression Weights

			Estimate	T	P
E-Learning Quality	←	'Learning Content'	.390	6.634	.000****
E-Learning Quality	←	Tangibility	-.020	-.342	.732
E-Learning Quality	←	Reliability	-.068	-1.159	.247
E-Learning Quality	←	Responsiveness	.036	.631	.528
E-Learning Quality	←	Assurance	.007	.126	.900
E-Learning Quality	←	Empathy	.035	.600	.549
E-Learning Quality	←	Course Website	.065	1.118	.264
* $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$, **** $P \leq 0.0001$					

The results indicate that the quality perception of e-Learning has a positive correlation with the language in which 'Learning Content' is provided. Students perceive the e-Learning content to be of better quality, if the 'Learning Content' is provided in their local language; which in this case was Urdu. This can be explained on the basis of how well they understand the 'Learning Content'. If students

are able to understand the 'Learning Content' more easily, they tend to perform better in their subjects and get better grades. This is attributable to the quality of learning material that is provided to them to support learning. Also, if the 'Learning Content' is provided to them in the local language, they are able to read the material for a longer time, as the reading in the local language does not inflict

as much cognitive load. As a result, they are able to understand the learning material better and that helps them in performing better in their courses.

However, since other factors have not proved to be significant, students perceive that the other dimensions do not need not to be provided in the local language. 'Course Website' is usually available in English, accordingly, as this has not been shown to be significant, we can claim students feel more comfortable navigating and using the 'Course Website' in English. Similarly, RATER scale variables, and service as a whole is not found to be significantly affected if provided in the local language.

4.2) Analysis & Findings – English Language Content

The second part of the data collection was done to get student responses regarding e-Learning experience i.e. if it was presented in English. A questionnaire was used to collect participant data, which consisted of two sections. Section 1 questions collected demographic information about the participants. Section two allowed us to assess

student perception of e-Learning when taught using the English language. A five-point Likert scale was used for all questions in section two. The questionnaire was distributed to students in different classes at two leading public universities in Lahore (Pakistan). University student (undergraduates, postgraduates, and executives) are used in numerous studies covering perceptions of quality. These students were enrolled in BSc Applied Management, BBA honors, MBA, EMBA, BSc Sciences and BSc Engineering programs. A total of 264 students, most of whom had previously had exposure to e-'Learning Content', participated in the survey. Detail of the demographic of respondents is mentioned in Table 1.

4.2.1) Reliability and Validity

To check the reliability of the scale we conducted Cronbach Alpha (Cronbach, 1951; Nunnally, 1978) to measure internal consistency. The extracted Cronbach alpha values for our quality factors are shown in table 9. All alpha (α) values are greater than ($>$) 0.70, which implies factors are highly correlated and interchangeable (Jarvis et al., 2003).

Table 9. Scale Reliability values

Factor Label	Number of Items	Cronbach's alpha (α)
Assurance	4	0.847
Reliability	5	0.950
Responsiveness	4	0.951
Empathy	4	0.913
Tangibility	4	0.918
'Learning Content'	8	0.963
Learning Quality	3	0.838
Course Website	4	0.884

4.2.2) Exploratory Factor Analysis (EFA)

To see if the observed variables adequately correlated, i.e. met reliability and validity

criteria, we conducted an EFA using Principal Component Analysis, with Promax rotation (see table 11). We selected Promax for two reasons, first because our sample size was adequately large, i.e. n=264. Secondly, since Promax is suitable when multiple factors are correlated. The cumulative variance of the eight factors was 80.41%, and all extracted

factors had eigenvalues above 1.0. All the commonalities for each variable were significantly high; i.e. all were above 0.300, with most being above 0.700. The Kaiser-Meyer-Olkin and Bartlett’s test for sampling adequacy was significant, showing that the chosen variables were sufficiently correlated (table 10).

Table 10.KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.841
Approx. Chi-Square	8924.962
Bartlett's Test of Sphericity	Df
	630
	Sig.
	.000

The constructs observed should have loaded to the respective factor greater or equal to 0.5, and it should be loaded into the respective factor otherwise it cannot be used for further analysis (Hair, Black, Babin, & Anderson, 2010). In our case, all the factors were extracted in a respective factor, see the pattern matrix (Table 11), used for further analysis. Terms measuring the same construct exhibited high construct loadings, i.e. suggesting adequate convergent validity. According to Hair et al. (2010), the minimum threshold

value recommended for a sample size of 264 is 0.350. Since all loaded values were above 0.50, it confirms that the factors had sufficient discriminant validity, and no unexpected cross-loading occurred.

After exploratory factor analysis, SEM was used to prove the convergent and discriminant validity of extracted construct, accordingly, confirmatory factor analysis was performed using AMOS.

Table 11.Pattern Matrix^a

Extraction Method: Maximum Likelihood.Rotation Method: Promax with Kaiser Normalisation.

a. Rotation converged in 6 iterations

	Factor							
	1	2	3	4	5	6	7	8
Learning Content' Q7	.958							
Learning Content' Q3	.926							
Learning Content' Q8	.923							

4.2.3) Confirmatory Factor Analysis (CFA)

After testing the scale reliability, convergent and divergent validity was tested. Convergent validity can be established if two indicators correspond to each other. Divergent validity is the degree to which two dissimilar constructs

can be easily differentiated. Construct reliability is the measure used to check the reliability of the extracted constructs, the threshold value is 0.7 in our case CR for all eight extracted factors, is above 0.90 (see table 12).

Table 12. Discriminant and convergent validity

CR	Constructs	LQ	ASR	REL	RES	REL	TAN	CW	LC
0.845	E-learning Quality	0.805							
0.854	Assurance	-0.020	0.772						
0.919	Empathy	-0.027	0.006	0.862					
0.945	Responsiveness	0.368	-0.031	-0.019	0.900				
0.951	Reliability	0.235	-0.105	-0.029	0.416	0.891			
0.918	Tangibles	-0.033	-0.033	0.067	-0.060	0.000	0.859		
0.878	Course Website	0.418	-0.105	-0.030	0.327	0.200	-0.099	0.804	
0.964	Learning Content	0.520	0.018	0.003	0.541	0.442	-0.037	0.291	0.877

All fitness values are within the acceptable criteria limits, depending on the test, hence a good model fit can be assumed (see table 13). Values between 2.0 and 5.0 are considered acceptable (Hau, 2010). In our research, the

chi-square/df value was equal to 2.434. Our RMSEA value is 0.074, and our CFI and NFI values are 0.908 and 0.854 respectively; thus demonstrating good model fit and supporting the validation of proposed model.

Table 13. Goodness of Fit Statistics

Index	Value	Criterion
Chi – Square /Df	2.434	2.0 – 5.0
RMSEA	0.074	0 – 0.1
CFI	0.908	0 ~ 1
NFI	0.854	0 ~ 1

4.2.4) Results

Again the ELQ model was tested as the independent variables, i.e. the original five SERVQUAL dimensions, plus the proposed dimensions - ‘‘Learning Content’’ and ‘Course Website’. The language was tested to

see whether it had a moderating effect on independent variables.

Table 14 gives the model summary, where R is the multiple correlation coefficients, signifying the correlation between the dependent and independent variables. R

Square shows the amount of variance in the dependent variable (DV), i.e. how E-learning Quality that is explained by the independent variable (IV). In our results $R^2 = .410$, which

means that the seven independent variables explain 41% of the variance in E-learning quality. Significant (0.000) denotes that the variance explained is statistically significant.

Table 14. Model Summary - English

Model	R	R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df 1	df2	Sig. F Change
1	.640 ^a	.410	.66035	.410	25.366	7	256	.000

a. Predictors: (Constant), ASR, EMP, LC_Eng, TAN, CW, REL, RSP

Table 15 gives you the estimates and the significance level of the independent and dependent variable. In the case of course content in English Language two variables are significant, i.e. ‘Learning Content’ $\beta = .453$,

$t = 7.368$ and $P = 0.000$; and ‘Course website’ $\beta = .312$, $t = 5.953$ and $P = 0.000$. Whereas relationship with the other five independent variables were not found to be significant to use the perception of quality.

Table 15. Regression Weights

			Estimate	t	P
E-Learning Quality	←	Learning Content	.453	7.368	.000****
E-Learning Quality	←	Tangibility	.019	.395	.693
E-Learning Quality	←	Reliability	-.043	-.765	.445
E-Learning Quality	←	Responsiveness	.057	.939	.349
E-Learning Quality	←	Assurance	.003	.062	.951
E-Learning Quality	←	Empathy	-.022	-.462	.644
E-Learning Quality	←	Course Website	.312	5.953	.000****
* $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$, **** $P \leq 0.0001$					

From table 15, we can see that the ‘Learning Content’ and ‘Course Website’ quality perception are significant. This means these two factors are significantly impacted by the use of English as the language of study. Student expects the ‘Learning Content’ to be in the right language for them to understand, i.e. to minimise the cognitive load required to

interpret meaning from the content. Similarly, if the ‘Course Website’ is using the language that the student is familiar with, then the student gain a positive perception of quality about the system. Students prefer the ‘Learning Content’ to be in English since in higher education, they are expected to use the material in English, i.e. all study books are in

English, the exams and class discussions are in English. Therefore, it is easier for them to read the 'Learning Content' in English.

We have looked into the results of both languages, native language i.e. Urdu and international language i.e. English. "Course website" is significant in the international language English, which can be explained by the fact that almost all the e-Learning technologies use the English language, and students are comfortable with "System" interface being in English, i.e. "Course Website" in English. Interesting, looking at the regression results of both models, moderating in Urdu and English, 'Learning Content' is significant in both; preventing us draw instant conclusions. For both languages we have tested that constructs of 'Learning Content' are reliable and discriminant, also the

regression of both models signifies a positive change in e-learning quality due to 'Learning Content'. In order to differentiate both models we need to check the difference in the mean and standard deviation of the 'Learning Content' category scores for both languages.

4.3) Paired Sample T-test

A paired sample t-test was conducted to determine how means of 'Learning Content' in English are different from of the means of those in Urdu. As we collected data on 5 points Likert scale; 5 being very unimportant and 1 being very important, lower value of mean for the variable means that students prefer 'Learning Content' in that language. Table 16 clearly shows that mean of 'Learning Content' in Urdu (LEC_Ur) is higher i.e. 4.08 than mean of 'Learning Content' in English (LEC_Eng), i.e. 1.97.

Table 16. Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	LEC_Ur	4.0878	264	.72450	.04459
	LEC_Eng	1.9703	264	.95754	.05893

From table 16, it is clear that there is a difference in the means of both languages. Table 14 shows the Sig (2-tailed) i.e. < 0.001, which signifies that above-mentioned means are statistically significant from one another. Therefore, we can conclude that for 'Learning Content' student prefer it to be in the English language.

5) Conclusion

Although learning in the local language is considered to be beneficial and has cognitive advantages, research conducted by 528 university students reveals that they prefer to use the learning material in English. From our

experiment, it has been found that students in the universities in Pakistan perceive the quality of e-Learning experience to be better, if the learning is provided in English, especially the written text. This is understandable, as these are the students who have always studied in the English language, i.e. from grade 1. They have not learned the English language as a second language specifically for use in higher education, but have always studied subjects like science, mathematics, history, physics, chemistry, and business in the English language. All the books used in Pakistani high schools are in English, and students always have to take their

exams in English. Another important aspect is that there are no authentic technical books available in Urdu, even if students wanted to read content in Urdu. Universities do not expect students to read books in Urdu, as the learning content has not been developed in the local language at this level. Therefore, students are accustomed to reading in English and writing in English.

An interesting exception is questionnaire item 8 of the 'Learning Content' dimension. After analysing the 'Learning Content' items in detail, we found that most of the students have preferred this item as compared to the other seven items. This question asked, 'how important is the availability of video lectures in the Urdu language?' Most of the students marked this option as "Important" or "Very Important". This implies that students like listening to the lectures in their local language. When it comes to reading and writing, they are more comfortable in English, as this is how they are trained. However, when it comes to listening and watching learning content, they mostly prefer the local language. Therefore, it is evident from the results that students would prefer the overall e-Learning experience to be in the English language, but would prefer audio/video lectures in Urdu, as it becomes easier for them to understand.

From this experiment, it is evident that, for learners at the university level, it is better to design and provide written e-Learning content, and systems interface, in the English language. However, live lectures and recorded lectures may also be provided in the local language, as it would suit most students and help their understanding.

References

1. Alaro, M. M., & Kebede, A. (2020). Relevance of Mother Tongue National Examinations to Mother Tongue Curriculum (Syllabus) and Textbooks: The Case of Wolaita Language in Wolaita Zone, Ethiopia. *Advances in Sciences and Humanities*, 6(1), 30.
2. Analytical, E. S. (2015). *Mother Tongue Based Multilingual Education*.
3. Baker, C. (2011). *Foundations of bilingual education and bilingualism (Vol. 79)*. Multilingual matters.
4. Baker, C. (2014). *A parents' and teachers' guide to bilingualism (Vol. 18)*. Clevedon: Multilingual Matters.
5. Ball, J. (2010). Educational equity for children from diverse language backgrounds: mother tongue-based bilingual or multilingual education in the early years: summary.
6. Bamgbose, A. (1976). *Mother Tongue Education: The West African Experience*. London: Hodder and Stoughton; ERIC.
7. Barac, R., & Bialystok, E. (2012). Bilingual effects on cognitive and linguistic development: Role of language, cultural background, and education. *Child development*, 83(2), 413-422.
8. Beelen, J., & Jones, E. (2015). Redefining internationalization at home. In *The European Higher Education Area*, (pp. 59-72).
9. Brock-Utne, B. (2015). Language-in-education policies and practices in Africa with a special focus on Tanzania and South Africa. In *Second International Handbook on Globalisation, Education and Policy*

- Research (pp. pp. 615-631). Netherlands: Springer.
10. Chambers, R. (1994). *Paradigm Shifts and the Practice of Participatory Research and Development*. Brighton: IDS.
 11. Chicoine, L. (2019). Schooling with learning: The effect of free primary education and mother tongue instruction reforms in Ethiopia. *Economics of Education Review*, 69, 94-107.
 12. Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.
 13. Cummins, J. (2000). Language, power, and pedagogy: Bilingual children in the crossfire. Clevedon: *Multilingual Matters*.
 14. Cummins, J. (2001). Bilingual children's mother tongue: Why is it important for education. *Sprogforum*, 19, 15-20.
 15. Darling-Hammond, L. (2015). *The flat world and education: How America's commitment to equity will determine our future*. New York: Teachers College Press.
 16. De Wit, H. (2015). Internationalization misconceptions. *International Higher Education*, (64).
 17. Edwards, J. (2010). *Language diversity in the classroom*. Bristol, Buffalo: *Multilingual Matters*.
 18. Flowerdew, J. (2015). Some thoughts on English for research publication purposes (ERPP). *Language Teaching*, 48(02), 250-262.
 19. Gfeller, E. (1999). *Language equality: Multilingual issues in Education*. Awassa: Ethiopia: SNNP Regional Education Bureau.
 20. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective*. Upper Saddle River, NJ: Pearson.
 21. Hau, E. (2010). *Wind Turbines: Fundamentals, Technologies, Application, Economics*. Germany: Springer.
 22. Hudley, A. H., & Mallinson, C. (2015). *Understanding English language variation in US schools*. Teachers College Press.
 23. Jarvis et al. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of consumer research*, 30(2), 199-218.
 24. Kaya, I., & Aydin, H. (2013). *The question of mother tongue education in Turkey: Challenges, experiences, and model recommendations for bilingual education*. Istanbul: UKAM.
 25. Kjær, A. L., & Adamo, S. (2016). *Linguistic diversity and European democracy*. Routledge.
 26. Lin, A. M. (2015). Conceptualising the potential role of L1 in CLIL. *Language, Culture, and Curriculum*, 28(1), 74-89.
 27. Lundberg, A. (2018). Multilingual educational language policies in Switzerland and Sweden. *Language Problems and Language Planning*, 42(1), 45-69.
 28. Mahboob, A., & Lin, A. M. (2018). Local languages as a resource in (language) education. In *Conceptual Shifts and Contextualized Practices in Education for Glocal Interaction*, (pp. 197-217).

29. Manan, S. A., David, M. K., & Dumanig, F. P. (2016). English language teaching in Pakistan: Language policies, delusions, and solutions. *English language education policy in Asia*, (pp. 219-244).
30. Masek et al. . (2021). Beyond counting words: A paradigm shift for the study of language acquisition. *Child Development Perspectives*, 15(4), 274-280.
31. Mirhosseini, S. A., & Ghafar Samar, R. (2015). Ideologies of English language teaching in Iranian academic research: Mainstream, alternative, and beyond. *Critical Inquiry in Language Studies*, 12(2), 110-136.
32. Nunnally, J. (1978). *Psychometric methods*. New York: McGraw-Hill.
33. Nyika, A. (2015). Mother tongue as the medium of instruction at developing country universities in a global context. 111(1-2), 01-05: *South African Journal of Science*.
34. Opoku-Amankwa, K., Edu-Buandoh, D. F., & Brew-Hammond, A. (2015). Publishing for mother tongue-based bilingual education in Ghana: politics and consequences. *Language and Education*, 29(1), 1-14.
35. Rhoads, R. A., & Valadez, J. R. (2016). *Democracy, multiculturalism, and the community college: A critical perspective*. Routledge.
36. Skutnabb-Kangas, T., & Heugh, K. (2013). *Multilingual education and sustainable diversity work: From periphery to center*. Routledge.
37. South, A., & Lall, M. (2016). *South, A., & Lall, M. (2016). Schooling and Conflict: Ethnic Education and Mother Tongue-based Teaching in Myanmar*. US Aid.
38. Tavoosy, Y., & Jelveh, R. (2019). Language teaching strategies and techniques used to support students learning in a language other than their mother tongue. *International Journal of Learning and Teaching*, 11(2), 77-88.
39. Trudell, B., & Young, C. (2016). *Good Answers to Tough Questions in Mother Tongue-Based Multilingual Education*. SIL International.
40. Tsui, A. B. (2017). Language policy and the social construction of identity: The case of Hong Kong. In *Language policy, culture, and identity in Asian contexts*, (pp. 131-152).
41. Tupas, R. (2015). Inequalities of multilingualism: Challenges to mother tongue-based multilingual education. *Language and Education*, 29(2), 112-124.
42. Uppal, M. A., Ali, S., & Gulliver, S. R. (2017). Factors determining e-learning service quality. *British Journal of Educational Technology*, 49(3), 412-426.
43. Vygotsky, L. (1978). Interaction between learning and development. *Readings on the development of children*, 23(3), 34-41.
44. Wiseman, A., & Odell, A. (2014, March 31). Should non-English-speaking countries teach in English? Retrieved July 26, 2018, from British Council: <https://www.britishcouncil.org/voices-magazine/should-non-english-speaking-countries-teach-in-english>
45. Yusupova, G. F., Podgorecki, J., & Markova, N. G. (2015). *Educating*

Young People in Multicultural Educational Environment of Higher Education Institution. International Journal of Environmental and Science Education, 10(4), 561-570.