A Study of the Effectiveness of Teachers Training in Sindh Province

Rubina Usman Ali [a*], Asma Afzal [b] and Madiha Fahd [c++]

[a] *University of Karachi, Pakistan.*
[b] *National University of Modern Languages, Pakistan.*
[c] *National University of Science and Technology, Islamabad, Pakistan.*

Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

This research study take a look into a study of the effectiveness of teachers training program for private secondary schools in Sindh. Technology integration is far behind in Pakistani Schools as a consequence of ICT deficiency, absence of in-service teachers training. ICT has tremendous potential to prepare students for the workplaces globally and improve educational systems, if it's integrated wisely into a curriculum. ICT Teacher Training is being sorted out at distinctive levels for the educators to outfit them with essential most recent information and abilities to make them great ICT educators by the Government of Pakistan and Education Department; in this study the relationships between in service ICT teachers training and changes in teaching behavior will be investigated. This research take a look into a study of the effectiveness of ICT teachers training program for private secondary schools in Sindh to promote Ubiquitous learning among students. The study's main goals were to investigate the impact of in-service teachers' ICT training on subject teachers' teaching methodology based on Ubiquitous Learning. Apricot Education System conducted this study in private schools in Karachi, and 150 teachers were chosen as a target sample using purposive random sampling following three months of teacher training. The

_____

++ *Research Scholar;*
Corresponding author: Email: rubinajahangir1@gmail.com;

investigation was descriptive in nature. A questionnaire with 60 items based on a 5 Likert scale was used to collect data using the survey method. The data was analyzed using the correlation, regression, and reliability tests. The results of the regression test revealed that teacher training had a substantial impact on subject teachers' teaching style based on Ubiquitous Learning. The t- value is 5.079.The data was analyzed using the correlation, regression, and reliability tests. The results of the regression test revealed that teacher training had a substantial impact on subject teachers' teaching style based on Ubiquitous Learning. The t-value is 5.079, and the p-value is.000 less than 0.05. That equals.000. It indicates that H1 is acceptable. Finding administrators should perform maximal ICT Teachers Training to improve teacher competencies, according to the recommendation.

1. INTRODUCTION

The teachers training program for school teachers is play a vital role because skillful and capable teachers rise excellence of education through professional development. There are some problems faced by trained teachers when they implement it in schools. Many institute of public sector tried to improve the public sector education through their In-Service teachers training programs.

Kaleem [1] found that teachers training always increases the quality teaching and learning process (p.45). The trained teachers always ensure and develop 21st-century skills among students. Classroom activities of trained teachers enhance the quality education environment. Teachers training promotes innovation, cognition and competency in students. Dahri [2] explored that trained teachers can improve performance as a teacher. Rind [3] found that teaching is a scientific thinking in which teachers should have achieve their objectives and goals designed before going in the classroom. Shaheen [4] found that the effective teaching warranties excellence in teaching and learning process. Sindh Education Foundation have 659 primary school, 98 middle school, 1094 secondary schools in Sindh. 996,673 students are studying in Sindh Education Foundation and PITE are two well-known departments of government of Sindh, Pakistan that tried to trained government teachers continuously. Provincial Institute for Teacher Education (PITE) vision is to convert the existing educational institutions in the province into real seats and abodes of learning by transforming teachers and educational managers into forward looking change agents through consistent, innovative and strategic training interventions. More quality of in-service teachers training in Sindh education institutes are required on regular basis. Ghunio (2023) found that the role of research and development institutes of Sindh are very important to ensure quality. The higher education institutes of Sindh offers ADE, B.Ed and M.Ed programs with different credit hours for In-Service teachers to motivate their best brains. Salman [5] described that feasible policy mechanism helps to conduct meaningful In-Service continuous professional development program. The authorities should have strong policy to bring various programs of teacher education in Sindh higher education institutions. Shah [6] found that the higher education is facing challenges in Pakistan regarding In-Service teachers training executions. The economical development and reduction of poverty cause major 'issues and challenges in Pakistan. According to Salman [7] in ubiquitous learning anywhere and anytime teacher can facilitate students. Ubiquitous learning is often simply defined as process to get skills anytime and therefore closely associated with mobile technologies. Nawab [8] found that U-Learning supports language learning. He revealed that U-Learning based education has a positive effect on student satisfaction. Sulman [9] found that mobile promotes distance education. Quality and excellence in education are continual efforts to build the new millennium generation, the generation that will control the future state. As a result, the country's education system requires deliberate initiatives to strengthen the capacity and ability to practise quality and excellence standards.

Ghunio [10] offered new pedagogical strategies, resources, and technologies, enabling better academic results. CPD programmes had a significant favourable effect on students' academic achievements. His study underlines the problems that teachers experience in CPD programmes in the Sukkur district of Sindh,

Pakistan. Qaisra [11] revealed that The teacher education make teachers able to bring a positive change in teaching and learning process across the globe. Ahmed [12] revealed that in 21st century the CPD model was developed to complement the School Assembling Policy. Ghumio [13] found that mobile promotes distance education. Quality and excellence in education are continual efforts to build the new millennium generation, the generation that will control the future state. As a result, the country's education system requires deliberate initiatives to strengthen the capacity and ability to practice quality and excellence standards. Debriefing innovation is critical for success in global competition. Practicing creativity is possible because to advances in information and communication technology. Creating a learning management system (LMS) is one way to increase the quality of creativity-oriented learning. Even if the course content is boring and mundane, e-learning can stimulate and foster creativity in the same way that any classroom teacher can. Try some of these seven techniques to tap into your learners' creativity if you're creating an e-Learning course. According to Jamil [14] found that there is a limited body of study on teacher perspectives, particularly in terms of what teachers think PBL work entails and how they see it carried out. Comprehending these viewpoints will facilitate the stakeholders' ability to modify PBL implementation appropriately.

.Ali [15] offered new pedagogical strategies, resources, and technologies, enabling better academic results. CPD programmes had a significant favourable effect on students' academic achievements.His study underlines the problems that teachers experience in CPD programmes in the Sukkur district of Sindh, Pakistan. According to Ali [16] in ubiquitous learning anywhere and anytime teacher can facilitate students. Ubiquitous learning is often simply defined as process to get skills anytime and therefore closely associated with mobile technologies. Gopang [17] found that U-Learning supports language learning. Ahmed [18] revealed that U-Learning based education has a positive effect on student satisfaction.

The social side of the Internet has undergone significant change; in general, social media allows users to participate and interact with one another by sharing thoughts, perspectives, and opinions. Users have the ability to tag, share, tweet, and like. Quality and excellence in education are continual efforts to build the new

millennium generation, the generation that will control the future state. As a result, the country's education system requires deliberate initiatives to strengthen the capacity and ability to practise quality and excellence standards in order to meet the challenges of the twenty-first century. One of the primary purposes of school is to foster creativity. he claimed that the classroom teaching experience also polish their skills so the effective teaching method is play a vital role. Abdin [19] revealed a significant association of secondary education in Balochistan. According to Ali [20], there is a limited body of study on teacher perspectives, particularly in terms of what teachers think PBL work entails and how they see it carried out. Comprehending these viewpoints will facilitate the stakeholders' ability to modify PBL implementation appropriately.

Rahoo [21] revealed that the teacher education make teachers able to bring a positive change in teaching and learning process across the globe. Ali [2] revealed that in 21st century the CPD model was developed to complement the School Assembling Policy. Aljafar [22] revealed a significant association of secondary education in Balochistan.

2. LITERATURE REVIEW

Ghunio [23] offered new pedagogical strategies, resources, and technologies, enabling better academic results. CPD programmes had a significant favourable effect on students' academic achievements.His study underlines the problems that teachers experience in CPD programmes in the Sukkur district of Sindh, Pakistan. Azher [24] revealed that U-Learning based education has a positive effect on student satisfaction. Munawer [25] revealed that the community of inquiry tools such as discussion boards, blogs, wikis, and videoconferencing etc. Most of the schools will prepare themselves to start U-Learning by developing ICT infrastructure and teachers training programs, But the heads didn't know how the curriculum entertain multidisciplinary task and achieve the targets of 21st century skills. The most important point is that principals, heads, coordinators and headmistress are the building blocks of teaching and learning environment. On the other hand professors of higher level institutes are the main focal points of U-Learning. The "U learning" refers to the customized learning, that's shaped with the aid of the traits of "net 2. 0" getting to know resources and studying. The net, computer computers, and lecture room multimedia are the customized ecological mastering gear in

nowadays ubiquitous computing technology. In ubiquitous learning environment two or greater than college students can collaborate, create, talk and think severely. The wise learning resources can also increase ubiquitous getting to know surroundings for digital natives of college stage. There may be a want of latest teaching strategies, unified curriculum and obligatory lecture room for teaching and learning process. Ubiquitous environment allows students with capabilities and extraordinary IQ levels, everywhere according to their predicted know-how shape needs. Iqbal [26] introduced the theory named Community of Inquiry (CoI) for online learning environments based on the concept of three distinct "incidences":

1. Cognitive
2. Social
3. Teaching

According to Ali [27] in ubiquitous learning anywhere and anytime teacher can facilitate students. Ubiquitous learning is often simply defined as process to get skills anytime and therefore closely associated with mobile technologies. Ahmed [28] found that U-Learning supports language learning. Ali [29] revealed a significant association of secondary education in Balochistan. Haider [30] found that mobile promotes distance education. Quality and excellence in education are continual efforts to build the new millennium generation, the generation that will control the future state. As a result, the country's education system requires deliberate initiatives to strengthen the capacity and ability to practise quality and excellence standards. Parveen [31] revealed that in 21st

century the CPD model was developed to complement the School Assembling Policy.

Rind [32] revealed that there is a lot of talk about ubiquitous learning in educational side, definition and implementation from this management. The first thing that we should know what is "Ubiquitous" and "learning". Word of ubiquitous is anywhere and anytime whereas learning means act or process of acquiring knowledge. So if we make two connections from these words. Ubiquitous learning is often simply defined as process to get skills anytime and therefore closely associated with mobile technologies. It is same if we called mobile learning because it can be accessed in a variety of contexts and situations. Salahuddin [33] revealed the fact of being available anytime and anywhere. Abid [34] revealed that U-Learning based education has a positive effect on student satisfaction. Khushk [35] found that gamification which are smartphone oriented helps people to train novice users. Saleem [36] found dimensions of U-Learning such as radio, mobile, permeative, and ubiquitous technologies. Kausar [37] analysed the student centered classroom based virtual learning such as U- Learning.

Khoso [38] revealed that The teacher education make teachers able to bring a positive change in teaching and learning process across the globe. According to Sahito [39], there is a limited body of study on teacher perspectives, particularly in terms of what teachers think PBL work entails and how they see it carried out. Comprehending these viewpoints will facilitate the stakeholders' ability to modify PBL implementation appropriately.
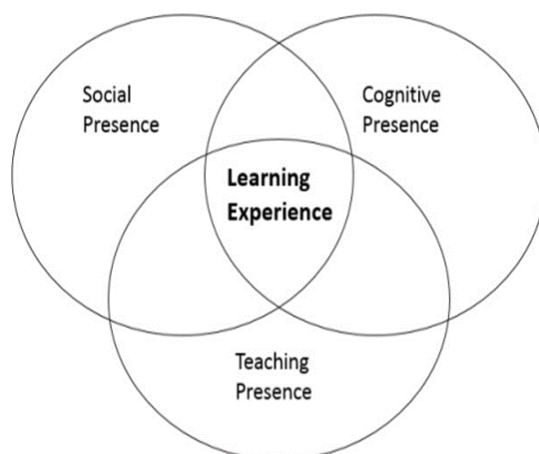

Fig. 1. Community of Inquiry (Garrison, Anderson, Garrison and Archer, 2000)

Rashid [40] explored ubiquitous based education, p–learning, and mobile pervasive learning. Arain [41] revealed that The teacher education make teachers able to bring a positive change in teaching and learning process across the globe. According to Ahmed [42], the initiative did not have the expected significant impact and yielded no visible results. The goal of this study is to determined that schools offer in-service teachers training, as well as the effects of nationwide efforts to train teachers. Islam [43] found that U-Learning supports language learning. Laroque [44] discovered that when it comes to the execution of practicum activities in the classroom, female PTs have a more statistically significant attitude than male PTs. The study advises TTI principals to take the required actions to enhance the delivery of teaching practise courses. Educating cooperative teachers on how to effectively implement the practicum component is important. As a result, PTs will feel more motivated and have a more positive outlook on teaching. he found that the effective teaching warranties excellence in teaching and learning process. Sindh Education Foundation and PITE are two well-known departments of government of Sindh, Pakistan that tried to trained government teachers continuously. But more quality of in-service teachers training in Sindh education institutes are required on regular basis. According to Lodhi [45], the five factors that UNICEF identified as being important to the study. The research study's findings would make a significant contribution to the body of knowledge about high-quality education and existing research findings. Rind [46] offered new pedagogical strategies, resources, and technologies, enabling better academic results. CPD programmes had a significant favourable effect on students' academic achievements.His study underlines the problems that teachers experience in CPD programmes in the Sukkur district of Sindh, Pakistan. Ahmed [47] found that U-Learning supports language learning. Arain [48] found that mobile promotes distance education. he revealed that type of learning such as; distance learning, virtual learning, electronic learning, mobile learning and ubiquitous learning after COVID-19..Junejo [49] offered new pedagogical strategies, resources, and technologies, enabling better academic results. CPD programmes had a significant favourable effect on students' academic achievements.His study underlines the problems that teachers experience in CPD programmes in the Sukkur district of Sindh, Pakistan. Mughal [50] revealed that in 21st century the CPD model was developed to complement the School Assembling Policy. Latif [51] revealed a significant association of secondary education in Balochistan. According to Bhutto [52], there is a limited body of study on teacher perspectives, particularly in terms of what teachers think PBL work entails and how they see it carried out. Comprehending these viewpoints will facilitate the stakeholders' ability to modify PBL implementation appropriately.

Jabeen [53] discovered a favourable correlation between teacher performance and the training, which also helps teachers advance their abilities and skills to function more effectively in the classroom. According to this study, educational institutions ought to provide their teachers with training that would help them succeed in the classroom and further the growth of the institution. According to Ali [54] in ubiquitous learning anywhere and anytime teacher can facilitate students. Ubiquitous learning is often simply defined as process to get skills anytime and therefore closely associated with mobile technologies. Ali [55] revealed that U-Learning based education has a positive effect on student satisfaction. Kumar (2019) found that mobile promotes distance education. Quality and excellence in education are continual efforts to build the new millennium generation, the generation that will control the future state. As a result, the country's education system requires deliberate initiatives to strengthen the capacity and ability to practise quality and excellence standards. Siddiqui [56] conducted the research using a descriptive survey-style methodology. The technique of Random Sampling was employed to choose secondary school teachers and head teachers. Data collection was done using the questionnaire tools. According to the study's findings, teacher preparation programmes should enhance their in-service training so that instructors can learn and apply all facets of teaching techniques. Soomro [57] demonstrated how in-service training programmes improve teachers' performance. The study also showed that teachers had a positive view of their own professional development. It suggested that rather than being general, the in-service training programmes be introduced in accordance with the subject. Sahito [58] revealed that The teacher education make teachers able to bring a positive change in teaching and learning process across the globe. Bhayo [59] revealed that in 21st century the CPD model was developed to complement the School Assembling Policy.

2.1 Theoretical Foundation

Social Learning Theory (SLT). a single component of SLT, self-efficacy, is frequently referred to in teacher education research, Every child has the right to a good education, and the teacher who makes a difference is the key to a successful teaching process. The finest furnishings and books will remain lifeless without a skilled, enthusiastic, and vibrant teacher to bring the walls, furniture, books, and resources to life. A child can develop holistically under the guidance of a professionally trained and groomed teacher. Eighty percent of students attend government schools in Pakistan, where they are not provided with a quality education. As a result, they are unable to compete with students who graduate from private schools because they lack the necessary knowledge and skills.Dahri [60] explored that trained teachers can improve performance as a teacher. Mughal [61] found that teaching is a scientific thinking in which teachers should have achieve their objectives and goals designed before going in the classroom. Bhutto [62] found that teaching skills are the essential part of teacher training. Messo [63] claimed that the classroom teaching experience also polish their skills so the effective teaching method is play a vital role. According to Sahito [64] in ubiquitous learning anywhere and anytime teacher can facilitate students. Ubiquitous learning is often simply defined as process to get skills anytime and therefore closely associated with mobile technologies. Messo [65] offered new pedagogical strategies, resources, and technologies, enabling better academic results. CPD programmes had a significant favourable effect on students' academic achievements.His study underlines the problems that teachers experience in CPD programmes in the Sukkur district of Sindh, Pakistan.Muhghal [66] found that U-Learning supports language learning. Bhutto [67] found that the role of research and development institutes of Sindh are very important to ensure quality teaching and learning process. The higher education institutes of Sindh offers ADE, B.Ed and M.Ed programs with different credit hours for In-Service teachers to motivate their best brains.Gopang [68] revealed that U-Learning based education has a positive effect on student satisfaction. Durrani [69] found that mobile promotes distance education. Quality and excellence in education are continual efforts to build the new millennium generation, the generation that will control the future state. As a result, the country's education system requires deliberate initiatives to strengthen the capacity and ability to practise quality and excellence standards. he revealed that The teacher education make teachers able to bring a positive change in teaching and learning process across the globe. Ahmed [70] revealed that in 21st century the CPD model was developed to complement the School Assembling Policy. According to him there is a limited body of study on teacher perspectives, particularly in terms of what teachers think PBL work entails and how they see it carried out. Comprehending these viewpoints will facilitate the stakeholders' ability to modify PBL implementation appropriately. Amur [71] described that feasible policy mechanism helps to conduct meaningful In-Service continuous professional development program. The authorities should have strong policy to bring various programs of teacher education in Sindh higher education institutions. He found that the higher education is facing challenges in Pakistan regarding In-Service teachers training executions. The economical development and reduction of poverty cause major 'issues and challenges in Pakistan.

2.2 Objectives

The main objectives of the study were:

- To examine the effect of In-service Teachers ICT Training on the Teaching pedagogy of subject teachers
- To know the effectiveness of Ubiquitous learning.

2.3 Research Question

- What is the effect of In-service Teachers ICT Training on the Teaching pedagogy of subject teachers?
- Is the effectiveness of Ubiquitous learning enhanced students' learning?

2.4 Conceptual Framework of Ubiquitous learning

Ubiquitous Learning enhances interactivity of learning process and self-regulated learning. Through these approach students send emails and collaborated with teacher and other students. Write comments on course websites, write diaries and reflective responses, maintain calendar and Task lists. These activities develop collaboration skills among students.

Ubiquitous Learning enhances fulfil the urgency of learning needs and situation of instructional activities. Students can search keywords, and diagnose online problems. They give feedbacks on learning materials, they engage themselves in reflective practices to develop critical thinking.

Ubiquitous Learning enhances personalized services and adaptation of subject contents. Students can make presentation, spread sheet,

working on online tools to promote individualized learning. They develop creativity skills.

Ubiquitous Learning enhances initiative of knowledge acquisition and learning communities. Students can prepare material presentation, blogs or forum. They take study guidance from social media, use messenger and chat rooms for collaboration. They develop communication skills through these activities.
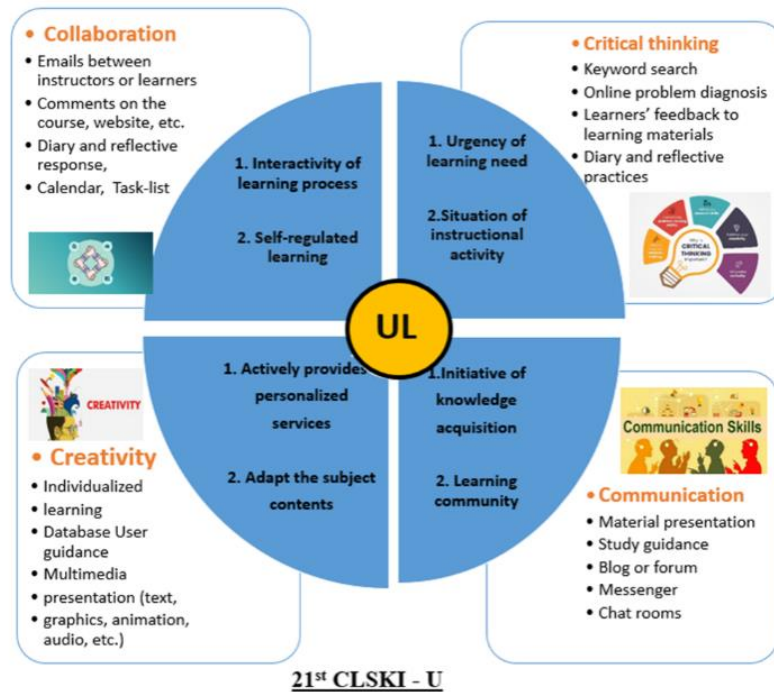
Fig. 2. Conceptual framework of Ubiquitous learning
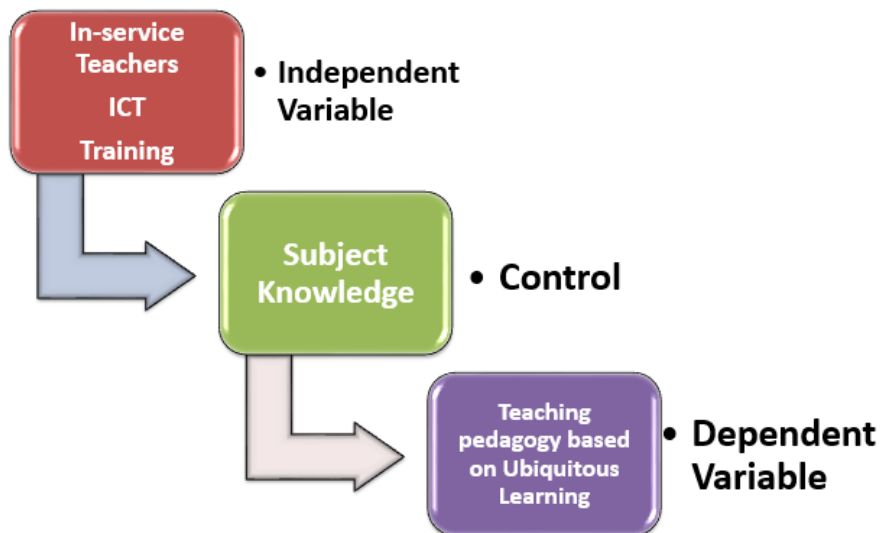
Fig 3. Research Model
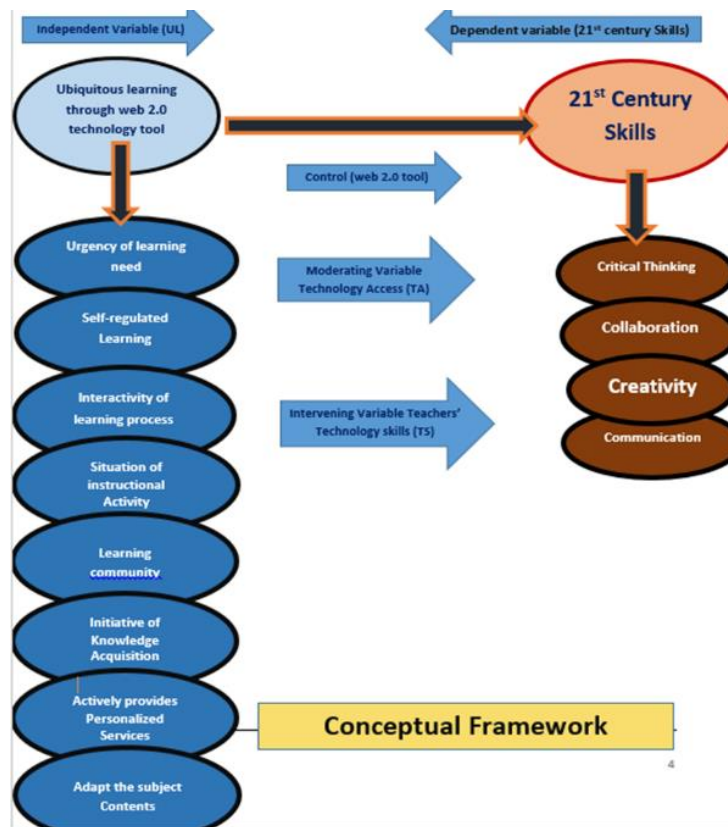
Fig. 4. Conceptual framework of 21st century skills

3. METHODS

The nature of this investigation was quantitative. The method of purposeful sampling was chosen. 150 teachers were chosen as a target sample using purposive random sampling after three months of teacher training. The investigation was descriptive in nature. A questionnaire with 60 items based on a 5 Likert scale was used to collect data using the survey method. Correlation and Regression test was used to analyze the data.

3.1 Data Analysis

Table 1. Normality Test

For both male and female data, the normal curve is not visible in the histogram

Tests of Normality[b,c]

	Gender	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
UL	female	.556	85	.000	.432	195	.000
	male	.387	65	.000	.658	125	.000
CR	female	.439	195	.000	.432	195	.000
	male	.357	125	.000	.658	125	.000
CL	female	.636	195	.000	.432	195	.000
	male	.767	125	.000	.658	125	.000
CM	female	.546	195	.000	.432	195	.000
	male	.658	125	.000	.658	125	.000
CRT	female	.282	195	.000	.860	155	.000
	male	.187	155	.000	.906	125	.000

a. Lilliefors Significance Correction
b. TR is constant when gender = female. It has been omitted.
c. TR is constant when gender = male. It has been omitted.

3.2 Histograms

Findings: Regarding skewness and kurtosis the given data is positively skewed and kurtosis for both male and female. The histogram does not show the normal curve.

3.2.1 Reliability test

Table 2. Reliability Statistics (Scale: Ubiquitous Learning)

Cronbach's Alpha	N of Items
.859	10

Findings: The Table 2 showed the value of Cronbach's Alpha which is (α = .859) this value is acceptable for items reliability which shows that all the items of questionnaire are 86 percent reliable.
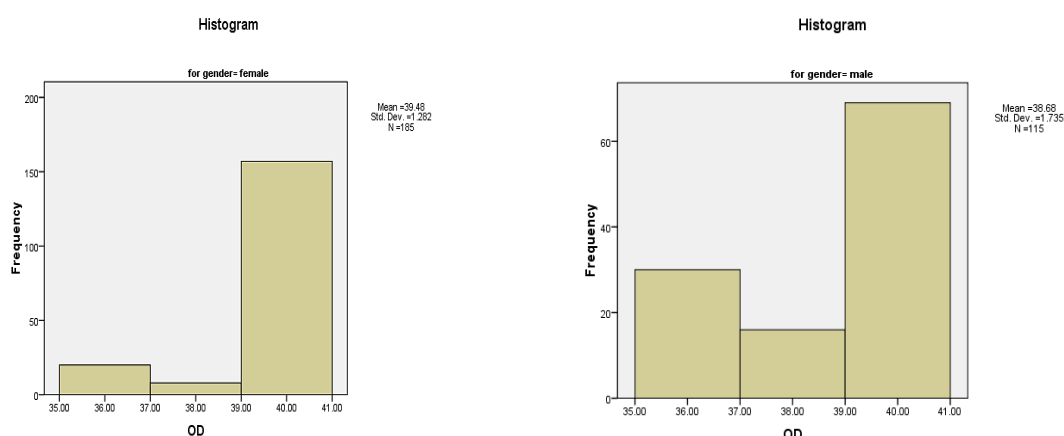
Figs. 5 and 6 Normality Test

Table 3. Reliability Statistics (Scale: Impact of ubiquitous learning on creativity)

Cronbach's Alpha	N of Items
.925	10

Findings: The Table 3 showed the value of Cronbach's Alpha which is (α = .925) this value is acceptable for items reliability which shows that all the items of questionnaire are 92 percent reliable.

Table 4. Reliability Statistics (Scale: Impact of ubiquitous learning on critical thinking)

Cronbach's Alpha	N of Items
.796	10

Findings: The Table 4 showed the value of Cronbach's Alpha which is (α = .796) this value is acceptable for items reliability which shows that all the items of questionnaire are 80 percent reliable.

Table 5. Reliability Statistics (Scale: Impact of ubiquitous learning on communication)

Cronbach's Alpha	N of Items
.896	10

Findings: The Table 4 showed the value of Cronbach's Alpha which is (α = .795) this value is acceptable for items reliability which shows that all the items of questionnaire are 80 percent reliable.

Table 6. Reliability Statistics (Scale: Impact of ubiquitous learning on collaboration)

Cronbach's Alpha	N of Items
.876	10

Findings: The Table 4 showed the value of Cronbach's Alpha which is (α = .796) this value is acceptable for items reliability which shows that all the items of questionnaire are 80 percent reliable.

Findings: Table 7 showed an extreme value of -1 and 1 which indicated a perfectly linear relationship. The dependent and independent variables have perfect positive linear relationship.

Table 7. Correlation matrix

Correlations		UL	CR	CT	CM
UL	R	1			
	r2				
	P				
	N	500			
CR	R		1		
	r2		.733[**]		
	P	,	.000		
	N		500		
CT	R			1	
	r2			. 825	
	P			. 000	
	N			500	
CM	R				1
	r2				. 925
	P	,			. 000
	N				500

**. Correlation is significant at the 0.01 level (2-tailed)

Table 8. Regression analysis

Model	R	r^2	S.E	D.Watson
1	.989	.885	1.46649	1.769

The value of r2 in the given table is 885. So the model is explained 88%. The value of R square showed that model is fit. The F value is 74.510 at .000 significant level which is less than 1%. So the fitness of model is ok

Table 9. Hypothesis testing results

H	V	C	t	p	Decision
		Con			
H1: ICTT has a significant relation with TP	TP	.342	6.435	.001	Accepted

H1: There is a significance relationship between the effect of In-service Teachers' ICT Training on the Teaching pedagogy of subject teachers based on Ubiquitous Learning. t-value is 6.435 and p value is .001 less than 0.05. That is .000. It means that H1 is accepted

4. DISCUSSION AND CONCLUSION

This study explored that continuous professional growth helps teachers to develop their teaching pedagogy regarding ubiquitous learning. Ubiquitous learning enhances teacher's 4Cs (collaboration, critical thinking, creativity and communication) during teaching and learning process. According to Ahmed [72] found that mobile promotes distance education. Quality and excellence in education are continual efforts to build the new millennium generation, the generation that will control the future state. As a result, the country's education system requires deliberate initiatives to strengthen the capacity and ability to practise quality and excellence standards. One of the primary purposes of school is to foster creativity. Debriefing innovation is critical for success in global competition. Practicing creativity is possible because to advances in information and communication technology. Creating a learning management system (LMS) is one way to increase the quality of creativity-oriented learning. Even if the course content is boring and mundane, e-learning can stimulate and foster creativity in the same way that any classroom teacher can. Try some of these seven techniques

to tap into your learners' creativity if you're creating an e-Learning course. Zafrullah [73] in ubiquitous learning anywhere and anytime teacher can facilitate students. Ubiquitous learning is often simply defined as process to get skills anytime and therefore closely associated with mobile technologies. Durrani [74] found that U-Learning supports language learning.

5. RECOMMENDATIONS

1. The teachers training program for school teachers should be conducted regarding ubiquitous learning because ubiquitous learning play a vital role because techno-savy skillful and capable teachers rise excellence of education through professional development.
2. There are some problems faced by trained teachers when they implement it in schools. Institute of public sector should try to improve the public sector education through their In-Service teachers training programs.
3. Administration of Sindh shoud be monitor the effects of Professional development of teachers.
4. A complete report regarding objective achivements should be shared with heads of schools.
5. Compliance report of training should be shared with Education officers town wise.
6. Follow-up and monitoring session should be very strong at headship level.
7. Awards and appreciations should be given to heads and teachers quarterly session.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Kalim U, Bibi S. Assessing teacher competencies in public schools of pakistan: A pathway for improving the effectiveness of professional development programs for teachers. SAGE Open. 2024;14(2): 21582440241236060.
2. Dahri NA, Vighio MS, Dahri MH. An acceptance of web based training system for continuous professional development. A case study of provincial institute of teacher education Sindh, Nawabshah. In 2018 3rd International Conference on Emerging Trends in Engineering, Sciences and Technology (ICEEST) (pp. 1-8). IEEE; 2024.
3. Rind UK, Sangi MK. Importance and implications of teachers' training for teaching english literature. An International Research Journal of Language and Literature. 2024;29.
4. Shaheen KM, Mahmood ST. Using CIPP model to evaluate online teacher training programme for single national curriculum. International Research Journal of Management and Social Sciences. 2021; 5(1):144-160.
5. Sulman N, Naz S, Ali S. Training requirements of educators in relation to introducing inclusive education practices in existing system of sindh, pakistan. Siazga Research Journal. 2024;3(1):20-29.
6. Shah SH, Quresh JA, Kazi A. A study to measure the effectiveness of teacher training progress on accelerated learning program (ALP) In Baluchistan: Using kirkpatrick evaluation model. Journal of Positive School Psychology. 2023;1449-1460.
7. Sulman N, Naz S, Ali S. Measuring the validity of the modules for capacity building training of teachers (CBTT) for ensuring inclusive education practices in sindh province. International Journal of Trends and Innovations in Business & Social Sciences. 2023;1(4):156-164.
8. Nawab A. Using action research to initiate school-based teacher development activities: Insights from Northern Sindh, Pakistan. Educational Action Research. 2023;31(2):285-305.
9. Sulman N, Naz S, Ali S, Hameed AUR. Measuring the impact of capacity building workshops for ensuring inclusive education practices using kirkpatrick's evaluation model in Sindh, Pakistan. CARC Research in Social Sciences. 2023;2(4): 266-279.
10. Ghunio A, Shaikh N. The Influence of continuing professional development (CPD) on the teaching approaches of secondary school teachers in District Sukkur, Sindh, Pakistan. Pakistan Languages and Humanities Review. 2023;7(2):730-739.
11. Qaisra R, Haider SZ. The influence of in-service teachers training programs on the

professional development of school teachers. Pakistan Journal of Humanities and Social Sciences. 2023;11(1):507-516.

12. Ahmed T, Mughal SH, Memon S. Attitude of prospective teachers towards the practicum in teachers' training institutes of sukkur and khairpur districts. Journal of Development and Social Sciences. 2023;4(4):353-361.

13. Ghunio A, Shaikh N. The Influence of continuing professional development (CPD) on the teaching approaches of secondary school teachers in District Sukkur, Sindh, Pakistan. Pakistan Languages and Humanities Review. 2023;7(2):730-739.

14. Jamil I, Muzaffar S. Influence of professional development programs on teachers'career development at public schools of karachi sindh, Pakistan; 2023.

15. Ali MSI, Sultana N, Shaheen A, Thalho NP, Ibrahim M. Major issues of teacher education in Pakistan. Webology (ISSN: 1735-188X). 2022;19(1):7153-7164.

16. Ali N, Haider K. Teacher professional development in sindh through nacte: Analytical study. Ilkogretim Online. 2021; 20(3).

17. Gopang ZH, Kazimi AB. Impact of leadership induction training on headteacher's management skills: a qualitative study in sindh, Pakistan. Pakistan Journal of Educational Research. 2022;5(2).

18. Ahmed G, Arain SS, Anjum TM. Impact of teachers' professional trainings on students' learning at secondary level in Punjab province, Pakistan: Problems and prospects. International Research Journal of Education and Innovation. 2022; 3(1):130-140.

19. Abdin ZU. Acquisition of teaching skills during teacher training programs (b. ed & m. ed) and actual classroom practices: A comparative study. Sukkur IBA Journal of Educational Sciences and Technologies. 2021;1(1):66-70.

20. Ali G, Dehraj MA. Difficulties faced by head teachers during proceeding administration in primary schools of Sindh. Asian Journal of Management Sciences & Education. 2019; 7(1):78-85.

21. Rahoo LA, Hasnain P, Ahmed T, Khan MA, Asghar A. Measuring the awareness and acceptance level innovative learning strategies of higher secondary school teachers of Sindh, Pakistan. The Journal of Contemporary Issues in Business and Government. 2021;27(2):6781-6788.

22. Aljafar SA, Saeed A, Fatima T. Factors affecting the effectiveness of teaching practices. European Online Journal of Natural and Social Sciences. 2020;9(3): 520.

23. Ghunio A, Shaikh N. The Influence of continuing professional development (CPD) on the teaching approaches of secondary school teachers in District Sukkur, Sindh, Pakistan. Pakistan Languages and Humanities Review. 2023; 7(2):730-739.

24. Azhar S, Sohail Ahmed S. Integration of ICT: The missing link in the pre-Service teacher training program at Karachi, Sindh; 2022.

25. Munawar U, Haider SZ, Khadim K, Ali MM. An exploratory study on the identification of the need for teacher training at the primary level in Punjab. Pakistan Journal of Humanities and Social Sciences. 2022;10(3): 1180-1186.

26. Iqbal S, Saeed A. Performance of teachers educators during ade practicum in urban and rural teacher education institutes of Sindh. Pakistan Journal of Educational Research. 2021;4(2).

27. Ali MS, Arshad M, Rasool S. Effective management of secondary school head teachers in Punjab: A comparative study. Global Regional Review. 2019;4(3):136-144.

28. Ahmad N, Ali Z, Sewani R. Secondary school teachers' perceptions of their head teachers instructional leadership and its effect on teachers' professional development in Karachi Pakistan. Journal of Development and Social Sciences. 2021;2(3):362-377.

29. Ali G, Dehraj MA. Difficulties faced by head teachers during proceeding administration in primary schools of Sindh. Asian Journal of Management Sciences & Education. 2018; 7(1):78-85.

30. Haider K, Sharjeel MY, Iqbal S. Challenges and opportunities of technical and vocational education and training in the province of Sindh, Pakistan. Pak Soc Sci Rev. 2021; 5:40-54.

31. Parveen G, Kang MA, Saeed A, Soomro AM. The impact of practicum on the professional development of prospective

teachers in teacher education programs. WALIA journal. 2020;36:1-5.

32. Rind IA, Ning B. Pre-service teacher education reforms: an attempt to make Pakistan a tolerant society. The Asia-Pacific Education Researcher. 2024;33(2): 383-394.

33. Salahuddin S, Mehar Q, Kazi H. Factors influencing transfer of training: Empirical evidence from public sector schools Hyderabad Pakistan. Indian Journal of Science and Technology. 2020;13(18): 1796-1802.

34. Abid I, Afaq KA, Atif S, Sana M, Saiqa A. Role of vocational and technical training in achieving gender equality and empowering all women and girls: An empirical study of Sindh, Pakistan. In E3S Web of Conferences. EDP Sciences. 2020;211: 01019.

35. Khushk AA. Impact of training, mood and motivation on employee performance in Universities of Sindh, Pakistan. Journal of Management Info. 2020;7(4):219-231.

36. Saleem A, Sharjeel MY, Haider K. Psychodynamic analysis of teacher training programme and academic performance of school students: evidence from Karachi. Habibia Islamicus (The International Journal of Arabic and Islamic Research). 2020;4(1): 73-84.

37. Kausar T, Chandio S, Quddus I, Qureshi GS, Baloch ZH, Pario A. Effectiveness of teaching with visualisation table in comparison to traditional lecture in Anatomy Department, Jinnah Sindh Medical University. Med Educ; 2020.

38. Khoso ZA, Siddiqui MA, Tagar AA, Tagar HK. An evaluation of Sindh schools education system: Problems and possibilities. Advances in Social Sciences Research Journal. 2019;6(3).

39. Sahito Z. Job satisfaction and the motivation of teacher educators towards quality education: a qualitative study of the universities of Sindh, Pakistan (Doctoral dissertation, Itä-Suomen yliopisto); 2019.

40. Rashid S, Rasool S, Hussain S. Effectiveness of Four years teacher education program B. Ed honors in Pakistan. Pakistan Journal of Social Sciences. 2019;39(3):1125-1135.

41. Arain AA, Ramzan M, Noshab M. Assessing effectiveness of teacher training in cultivating peace: An experimental study. Journal of Educational Research. 2019;22(1):1027-9776.

42. Ahmad S, Shah MH. Training methodology of provincial training institutions for heads of secondary schools in pakistan-an evaluative study. Dialogue. 2019;14(2):135.

43. Islam M, Shah M, Sarir S, Jan AU. Situational analysis of teacher capacity building paradigm in Khyber Pakhtunkhwa–Pakistan. Indian Journal of Science and Technology. 2019;12:46.

44. LaRocque N, Sipahimalani-Rao V. Education management organizations program in Sindh, Pakistan: Public–private partnership profile; 2019.

45. Lodhi IS, Ghias F. Professional development of the university teachers: An insight into the problem areas. Bulletin of Education and Research. 2019;41(2):207-214.

46. Rind S, Dahraj M, Siming I, Rind K, Rind N, Ditto A. The level of male and female private school teachers regarding job satisfaction in Sindh. WALIA journal. 2019;35(1):90-93.

47. AHMED G, MUNSHI DP, JUMANI DNB. Impact of in-service teacher training at elementary level in sindh province. The Sindh University Journal of Education-SUJE. 2015;44(2).

48. Arain SS, Arshad M, Ahmed G. Institutional problems diminishing quality of secondary education in Sindh: Teachers' sentiments. Indian Journal of Science and Technology. 2019;12(15):1-8.

49. Junejo MI, Sarwar S, Ahmed RR. Impact of in-service training on performance of teachers a case of STEVTA Karachi region. International Journal of Experiential Learning & Case Studies. 2018;2(2):50-60.

50. Mughal SH. Analysis of government primary in-service teachers training programs with reference to curriculum delivery. Sciences. 2018;8(1): 117-127.

51. Latif S. Comparative study of blended learning for in service teachers training of Punjab and Sindh (Doctoral dissertation, University of Management & Technology); 2018.

52. Bhutto MI, Qazi W, Rawat KJ. Effect of existing teaching of chemistry on ninth graders' achievement in Sindh, Pakistan. Bulletin of Education and Research. 2018;40(3):1-30.

53. Jabeen N, Khalil S. Impact of training on teacher's performance in Karachi, Sindh, Pakistan. Pakistan Languages and Humanities Review. 2023;7(2):661-668.

54. Ali U. Enhancing teacher education: Strategies for effective instruction and professional development (No. 12002). Easy Chair; 2024.

55. Ali AK, Rind IA, Sabur Z. Continuous professional development of school teachers: Experiences of Bangladesh, India, and Pakistan. In Handbook of education systems in South Asia (pp. 1355-1380). Singapore: Springer Singapore; 2021.

56. Kumur A, Butt FA, Malik I. Problems of teaching English in government colleges of district Khairpur Mirs Sindh Pakistan. International Journal of Research in Social Sciences. 2015; 5(1):328-347.

57. Siddiqui FK. Problems of educational management in the private sector relating to the elementary education in Sindh. Grassroots. 2018;47(1).

58. Sahito Z Väisänen P. Quality in teacher education: Evidence from the Universities of Sindh, Pakistan; 2018.

59. Bhayo NH, Yuyou Q, Zeng W, Dong J. Role of District education officials in quality education in nanguan and shikarpur districts: A comparative study between China and Pakistan. Language. 2018;9(26).

60. Dahri H, Parveen S, Sahito Z, Gopang AS, Khamboh MA. Job satisfaction among government high school teachers of the province of Sindh, Pakistan. Journal of Elementary Education. 2015;25(2):125-137.

61. Mughal SH. In-service training of english language teachers at primary level in rural Sindh: Analysis of monitoring practices; 2017.

62. Bhutto GM, Khoso I, Jhatial AA. Assessing the impact of higher education commission's training on university teachers' performance: Case study of university of Sindh. Shield: Research Journal of Physical Education & Sports Science. 2016;11.

63. Messo MS, Messa SK. Evolution of examination and training system to produce teachers capable to face 21 st century educational challenges. Grassroots. 2017; 51(1): 17260396.

64. Sahito Z, Vaisanen P. Effect of ICT skills on the job satisfaction of teacher educators: Evidence from the Universities of the Sindh Province of Pakistan. International Journal of Higher Education. 2017;6(4):122-136.

65. Messo MS, Messa SK. Evolution of examination and training system to produce teachers capable to face 21 st century educational challenges. Grassroots. 2017;51(1): 17260396.

66. Mughal SH. In-service training of english language teachers at primary level in rural sindh: Analysis of monitoring practices; 2017.

67. Bhutto GM, Khoso I, Jhatial AA. Assessing the impact of higher education commission's training on university teachers'performance: Case study of university of sindh. Shield: Research Journal of Physical Education & Sports Science. 2016;11.

68. Gopang ZH, Zarif T. The effectiveness of inservice training programme. Asian Journal of Social Sciences & Humanities. 2016;5(4).

69. Durrani IH. Exploring variations in the relative technical efficiency in providing school education: a case study of Sindh, Pakistan. International Journal of Education Economics and Development. 2016;7(3-4):155-197.

70. Ahmed G, Munshi DP, Jumani DNB. Impact of in-service teacher training at elementary level in sindh province. The Sindh University Journal of Education-SUJE. 2015;44(2).

71. Amur S, Nadeem M, Ahmed J, hussain Jafri I, Bhatti T. Exploring the role of teachers training instituions in enhancing teaching practices of secondary school teachers in District Kech, Balochistan, Pakistan; 2020.

72. Ahmed H, Soomro S, Soomro AB, Ali NI, Bhatti T, Basir N, Gill NP. TPACK adaptation among faculty members of education and ICT departments in University of Sindh, Pakistan. International Journal of Advanced Computer Science and Applications. 2018;9(5):203-209.

73. Zafarullah S, Mumtaz K, Murad PU, Abida S, Humera S. Teachers' time management and the performance of students: A comparison of government and private schools of Hyderabad, Sindh, Pakistan; 2016.

74. Durrani IH. Exploring variations in the relative technical efficiency in providing school education: a case study of Sindh, Pakistan. International Journal of Education Economics and Development. 2016;7(3-4):155-197.