Exploring the Quality of Higher Education in Virtual Learning Environment Framework: Critical Discourse Analysis

Yousaf Khan[1], Naveed Sultana[2]

[1]Ph.D. Scholar, Department of Secondary Teacher Education, AIOU, Islamabad, Pakistan.
[2]Associate Professor, Department of Secondary Teacher Education, AIOU, Islamabad, Pakistan.
*Corresponding author email address: uswat503@gmail.com

ABSTRACT

The method used to analyze the researchers and their discourses in the community of practice is very useful for developing the practice. The purpose of the study was to explore the quality of higher education in Virtual Learning Environment Framework of both face to face conventional and distance education through the use of modern social media networks as well as Information and Communication Technologies (ICTs) for quality higher education in Pakistan in order to achieve Sustainable Development Goals (SDGs).The study was qualitative in nature. The methodology used was Critical Discourse Analysis framework for ICT-integrated teacher education in order to explore the boundaries of Higher Education in Virtual Learning Environment Frameworks (VLEFs) for quality education in both face to face and Open Distance Education Systems.The study revealed that there are points of convergence when ICT-integrated teacher education and training is used in Virtual Learning Environment Frameworks (VLEFs). So, the system can be generalized to other disciplines in higher education for quality instruction and learning.Hence, the researcher suggested and recommended a multimodal system of education at higher level in order to face the challenges of quality Higher Education in the 21st century and achieve Sustainable Development Goals in Pakistan.

INTRODUCTION

ICT-integration in teacher education has created new frontiers in higher education and the boundaries of which are seemed to be cloudy and blurred due to convergence and divergence in both F2F and ODL systems of higher education. Consequently, influencing the boundaries of Higher Education in Virtual Learning Environment Frameworks (VLEFs).

Recently, there are numerous studies that could be critically analyzed to form a new system of teacher and higher education that is qualitative, standardized and cost-effective besides its multimodal delivery. The researchers in this study have tried to carry out Critical Discourse Analysis (CDA) for exploring new frontiers and boundaries in teacher and higher education through Open and Distance flexible and ubiquitous education with e-learning and for ICT-integration and reviewed a wide range of literature and discourses intensively and extensively to evolve a standardized and quality higher education program to be multimodal in three dimensions: Theory, Practice and Technology. The same pattern could be used in all Higher Education Programs and disciplines when there is a Virtual Learning Environment Framework (VLEF) used in Higher Education Institutions with constructivist paradigm and self-regulated learning mechanisms as well as cognitive apprenticeships with Learning Theories Application in Instructionlal Designs and Learning Strategies.

STATEMENT OF THE PROBLEM

The problem of the study was "Exploring the quality higher education in Virtual Learning Environment Framework through Critical Discourse Analysis" by using Fairclough three dimensional framework of Critical Discourse Analysis (CDA).

OBJECTIVE OF THE STUDY

The objective of the study was to find the point of convergence in both Face-to-Face conventional and Distance Education Systems through the use of modern social media networks and gadgets for quality Higher Education in Pakistan to become multimodal as well as flexible for achieving Sustainable Development Goals (SDGs), especially SDG # 4.

RESEARCH QUESTIONS

The research study has tried to seek answers to the following questions:

1. Is it possible to separate traditional F2F from ODL higher education programs in ICT-integrated systems?
2. Are there some aspects of convergence in higher education through F2F and ODL systems when it is ICT-integrated?
3. Can the new boundaries of higher education in Virtual Learning Environment Frameworks (VLEFs) be blended for making quality higher education systems in Pakistan?

SIGNIFICANCE OF THE STUDY

The study is significant because it has tried to explore a theoretical framework for ICT-integrated, multimodal, flexible, standardized, qualitative and cost-effective higher education systems in both ODL and F2F using Virtual Learning Environment Frameworks (VLEFs) for achieving Sustainable Development Goals (SDGs) in Education (SDG # 4).

METHODOLOGY

The study was qualitative in nature. The methodology used was Critical Discourse Analysis Framework (CDA) for ICT-integrated teacher education in order to explore the boundaries of Higher Education in Virtual Learning Environment Frameworks (VLEF) for quality higher education in both face to face and Open Distance Education Systems.

The study was carried out in constructivist paradigm of qualitative research with Critical Discourse Analysis (CDA) framework. The Fairclogh (1995) three dimensional frameworks was utilized for critical discourse of documents in the form of text in discursive practices of both F2F (Face to Face) and ODL (Open Distance Learning) Systems used in ICT–integrated Teacher Education Program with Virtual Learning Environment Frameworks (VLEFs) for the purpose of theoretically analyzing the text and literature to explore the quality of higher education in Virtual Learning Environment Framework as used by Khan (2014, 2015) to help achieve the SDG # 4 in Pakistan.

The purpose was to develop a multimodal higher education system in which both F2F and ODL utilize the blended and online e-learning systems in order to achieve the Sustainable Development Goals (SDGs) of higher education in Pakistan through quality and relevance.
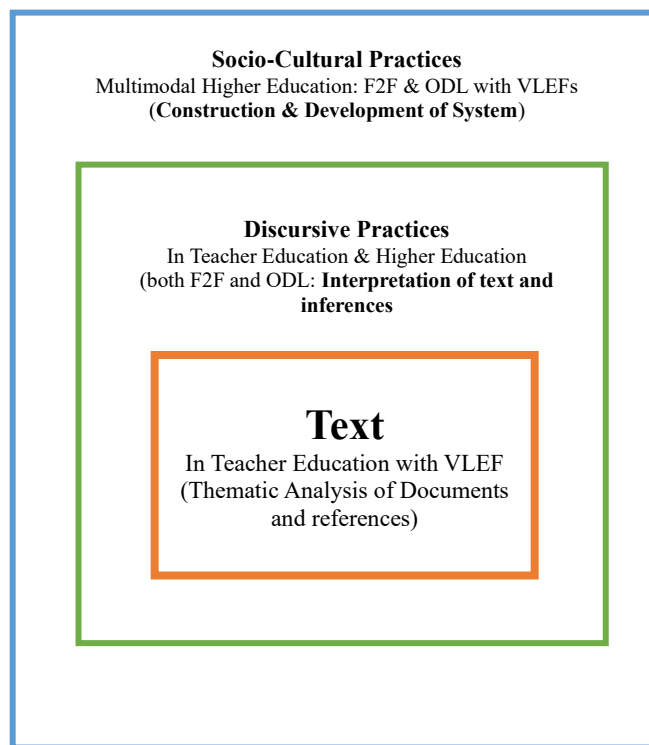

Socio-Cultural Practices
Multimodal Higher Education: F2F & ODL with VLEFs
(**Construction & Development of System**)

Discursive Practices
In Teacher Education & Higher Education
(both F2F and ODL: **Interpretation of text and inferences**

Text
In Teacher Education with VLEF
(Thematic Analysis of Documents and references)

Figure 1: Fairclough framework for Critical Discourse Analysis (CDA) in Education

LITERATURE REVIEW

The literature and discourse was critically reviewed to explore new frontiers and boundaries in both Face to Face (F2F) and Open and Distance Learning (ODL) systems for quality higher education in Virtual Learning Environment Frameworks (VLEFs) as discussed in the following sections:

TOTAL QUALITY ASSURANCE OF HIGHER EDUCATION PROGRAM: DONABEDIAN TRIAD FRAMEWORKS

According to Lee *et al* (2014); Donabedian's triad (Figure: 2) as commonly used theoretical framework having three components as structure, process and outcomes that is widely used for the quality assurance of health program. In the evaluation of an educational program for quality assurance the same Donabedian triad can be used as: Structure for setting, process for methodology and outcomes for change in knowledge, skill and attitude. This triad has suggested evaluation of three aspects from user's (learners) perspective. But, if we want to evaluate these three aspects from the providers' (institution

/ administration) perspective it will refer to cost-effectiveness and efficiency and can be used for changing, modifying and developing the program so that to make it more competitive and qualitative.
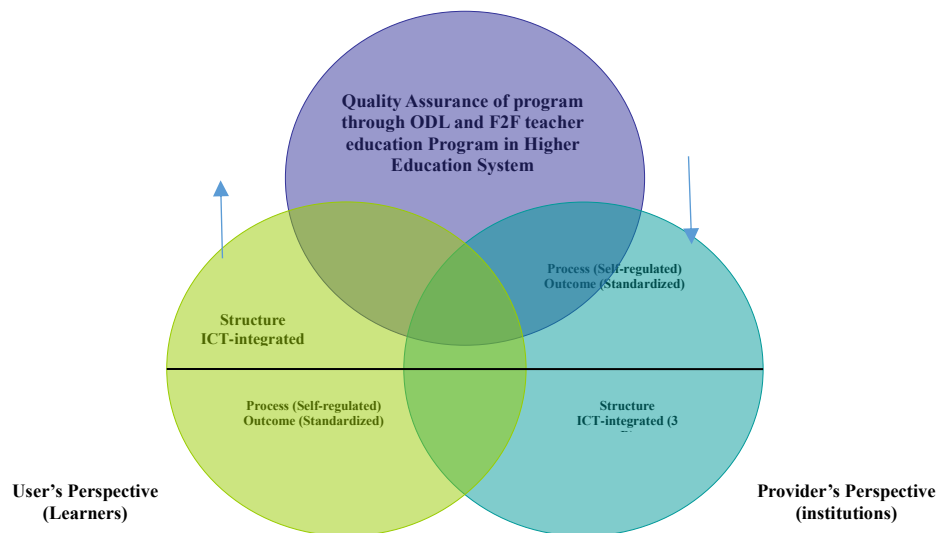

Figure 2: Total Quality Assurance of Higher Education Program in Virtual Learning Environment Framework (VLEF): Donabedian's triad

OPEN AND FLEXIBLE LEARNING THROUGH ICT-INTEGRATION

As an alternative to Traditional Higher Education (Figure: 3); Towey (2014) writes that the recently changes took place in Chines Higher Education due to its economic background and demand of skilled workforce in future as well as expansion of traditional modes of delivery in higher education due to technological advancement. Further, Towey (2014) while discussing the open and flexible learning said that in addition to traditional models and approaches more open and flexible modes of delivery have been gaining in popularity. Ibid (2014) also writes that: One of the best known advances in OFL (Open and Flexible Learning) has been the emergence of Massive Open Online Courses (MOOCs).

Khan & Sultana (2016, 2020 & 2021); have discussed advanced cognitive apprenticeships to develop self-regulated and critical thinking in students through the use of Virtual Learning Environment Framework with ICT-integration for teacher education (Khan, 2013, 2014, 2015, 2016 & 2017). They also discussed application of learning theories in teaching learning process when ICT-integrated system is used.

The advance cognitive apprenticeships model is effective in both F2F and ODE systems with web-based and social media designs (Khan & Yousaf, 2014 & 2015) keeping in view the application of learning theories in instruction and learning.
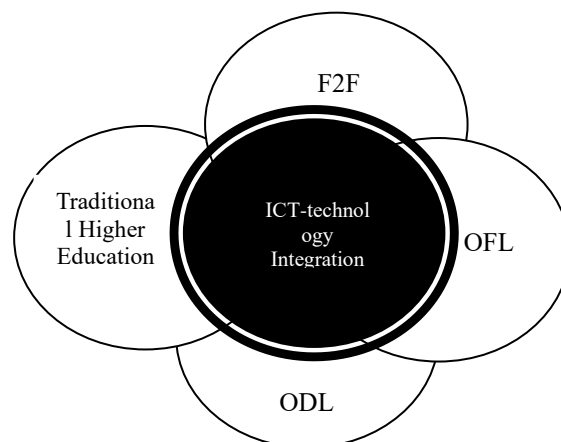

Figure 3: ICT-Integration in Teacher Education in All Modes of Education can be applied for higher education in Virtual Learning Environment Framework (VLEF): Multimodal and Self-regulated learning through cognitive apprenticeships.

ACCESSIBILITY TO HIGHER EDUCATION: UBIQUITOUS AND MOBILE LEARNING WITH LMS AND ASSISTIVE TECHNOLOGIES (ATs)

Towey (2014) writes that effective teachers are first and foremost experts in their discipline and then they become professionals. Further, Ibid (2014) described a good teacher as one having deep knowledge and is able to answer questions. So, both effective and good teacher can benefit from MOOCs and OFL (Figure: 4) to update their professional knowledge. Some of the more flexible delivery models, such as MOOCs make it possible for many teachers to access the renowned experts all around the globe at anytime and anywhere (ubiquitous and mobile learning) for continuous development and life-long learning with continuous update in knowledge, skill and attitude through the use of LMS and CMS as well as Assistive Technologies (ATs) for inclusivness.
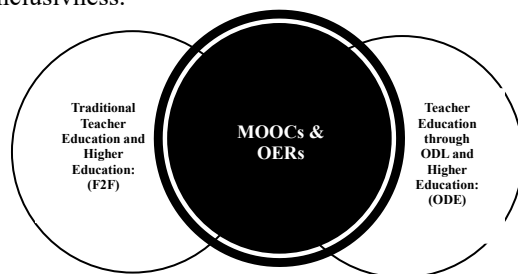

Figure 4: Accessibility to Teacher Education and Higher Education by using MOOCs, OERs and OFL for Life-long and continuous learning with LMS and ATs

NEW TRENDS IN OPEN AND FLEXIBLE EDUCATION: BLENDED LEARNING TRANSFORMATION FOR SELF-REGULATED AND LIFE-LONG LEARNING

The new trends due to technology in open and flexible education are making the boundaries of traditional F2F and Distance Higher Education cloudy and blurred. The new frontiers and boundaries are emerging in the form of blended and e-learning systems in both types of education systems and programs (Khan, 2014, 2015).

Lam and Li (2014) in their study while discussing the developmental trends of open learning and conventional institutions; highlighted the phenomenon that both types of educational establishments are enhancing their level of flexibility due to adoption of e-learning. So, they concluded that the line between open and conventional education is becoming blurred. The study also argued that education is flexible where open and conventional educational modes converge (due to the application of digital tools and apps).

Lam and Li (2014) further said that: The constructs of openness and flexibility besides being distant when taken in meaning and usage they become indistinguishable (Figure: 5). Hence making higher education accesasble, inclusive and democratic.
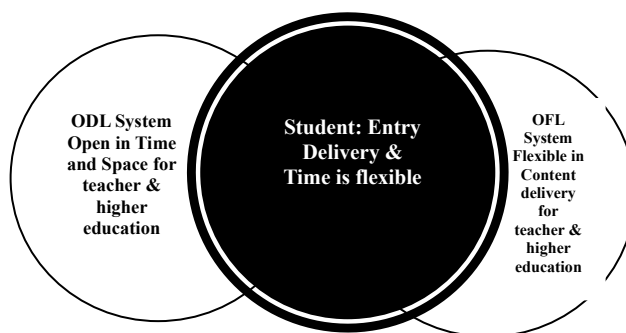

Figure 5: Blended or e-Learning and Flexible Higher Education: Providing access, inclusion and democratization in education

MULTIDIMENSIONAL SYSTEM FOR OPENNESS AND FLEXIBILITY

The boundaries of both conventional and open higher education also become blurred and cloudy due to the convergence and divergence of open and flexible education. Lim and Li (2014) discussed the convergence due to centrality of

learner's choice and learner-centered instructions, enabling removal of barriers to accommodate learning needs of diverse students.

The institutions that are established to enhance their flexibility are adopting more and more practices of open education and thus the two systems converge. So, the open and conventional education institutions are moving towards convergence rather than divergence due to mode of delivery and student's access and choice. The role is played by the use of OERs and MOOCs in traditional / conventional F2F institutions (Figure: 6). Both systems of education will face new challenges and issues in this emerging trend in the 21st century as in the present scenario of Covid-19 in Pakistan and all over the globe.
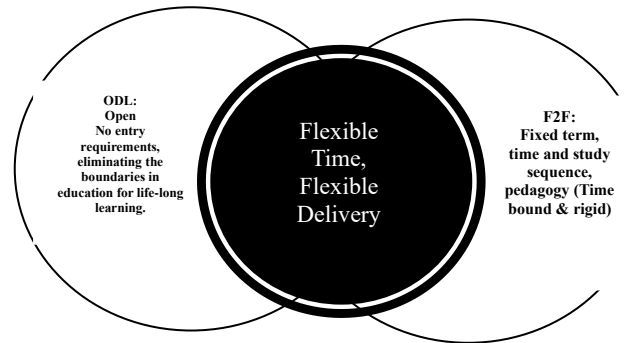
Figure 6: Convergence and Divergence in both ODL and F2F Teacher and Higher Education
Inclusion and diversity with openness and flexibility.

ONLINE WEB STREAMING OF LECTURES AND TUTORIALS

Gelison (2014) has discussed that when lectures and tutorials sessions were web streamed in real time (synchronious) using free internet sites, and were also recorded (asynchronious) on video tapes. The streamed sessions were kept available online throughout the term in the Philippines Open University. So that students could view and review the sessions anytime and anywhere (Figure: 7). The present Covid-19 phenomena need this type of delivery in Higher Education of Pakistan to be both synchronious and asynchronious at the same time.
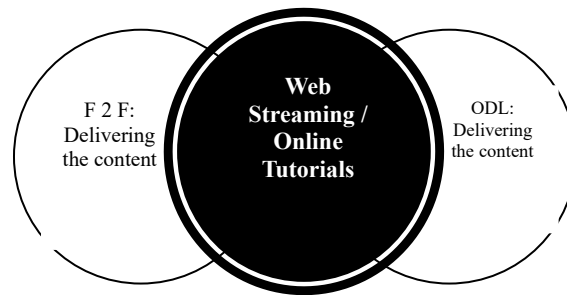
Figure 7: Web Streaming and Online Tutorials in both F2F and ODL Teacher
and Higher Education: Synchronicity problem in delivery is solved through
ICT-integration and using ICT tools and apps for teaching and learning.

MULTIMEDIA,INSTRUCTIONAL DESIGN AND MOBILE LEARNING

The boundaries of traditional teacher and higher education as well as open and distance learning are blurred due to use of multimedia presentations, instructional design and mobile learning with ICT-integration and synchronous as well as asynchronous instructional designs due to the application of designing tools and apps for instructional and learning.

According to Tsang et al (2014): the learning content presented in mobile devices now allows the inclusion of many instructional designs strategies, So that effective and meaningful learning can be designed for students both within and outside school settings. The use of designing tools and apps help in multimedia presentations of content.

According to Lai et al (2014): Applying mobile technologies in online learning system is now an irreversible trend, the ubiquitous nature of mobile learning is attractive to students, because they can enjoy the flexibility of learning environment in both F2F and ODL systems (Personalized instruction and flexible learning through ICT) with Skinnerian

Machine Learning (Khan, 2016; Khan & Sultana, 2020) and application of cognitivists learning theories in learning design and teaching (Khan & Sultana, 2021).
The prototype of the system contains three components that were used in Caritas Institute of Higher Education.
-    The mobile course management system.
-    The mobile library information system, and
-    The mobile 3D library navigation system.
    The study of Lai *et al* (2014) concluded that the system is attractive and effective for students and can be used in multimodal system of higher education.

APPLICATION OF TEXT MINING TECHNIQUES IN HIGHER EDUCATION
        Open learning has also made contributions in new frontiers of teacher and higher education through ODL to be cloudy and blurred with the application of text mining techniques and deep learning with Artificial Intelligence (AI) used for thematic analysis.According to the study of Wong et al (2014): The asynchronous online discussion (AOD) forum has been widely used in open learning for developing critical thinking and communication skills. The increasing numbers of posts in discussion fora are analyzed on the basis of text mining techniques; this technique is used to cluster and group similar arguments for better analysis and group view point. In this technique Latent Dirichlet Allocation (LDA) can be used to discover the arguments in the posts and analyze it as similar or distinct. It will also help in detecting plagiarism and new trends in the posts and assignments. As "turnitin" is used for the purpose in Pakistan in Higher Education system. So, the tweets can also be thematically analyzed and categorized into groups.
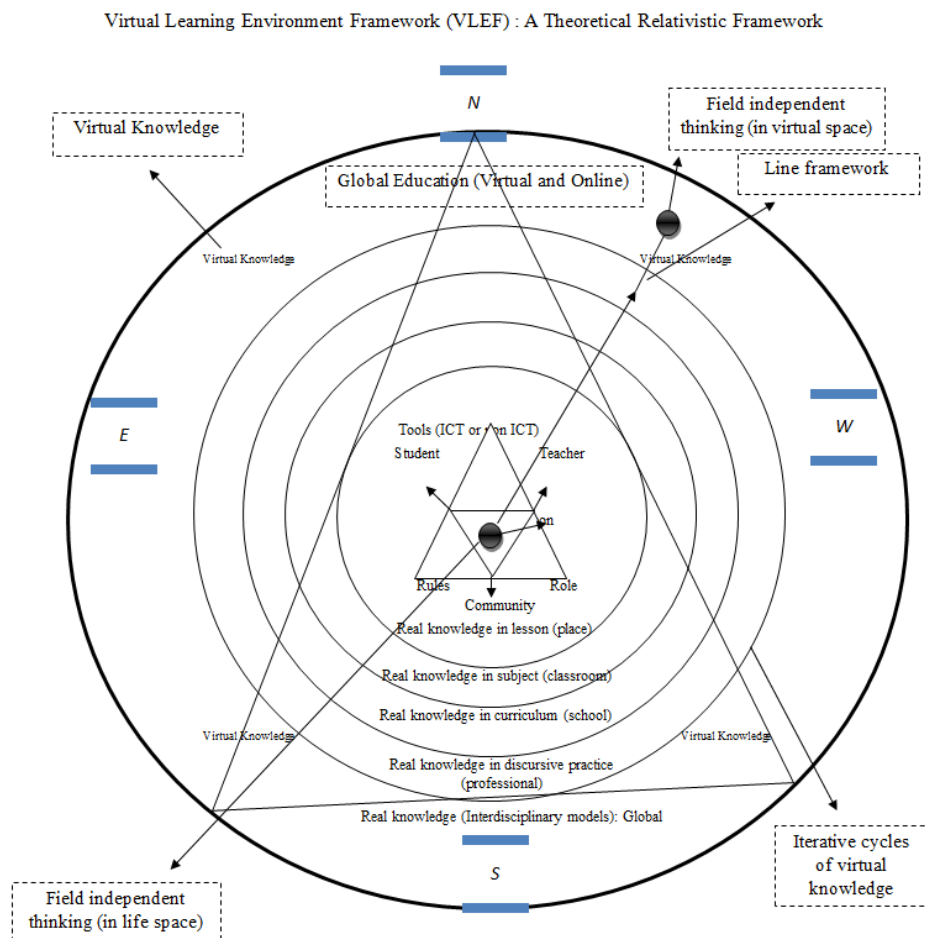

Figure 8: Unit of analysis, iteration and line framework for activity system (Khan 2014, 2015)

INTERNATIONALIZATION / GLOBALIZATION AND CROSS CULTURE COLLABORATION IN HIGHER EDUCATION

Cross Culture Education system is a new frontier whose boundaries are blurred in both traditional and ODE systems of education. So, that there are international and globalized trends in higher education and teacher education and training.

According to Boulton (2014) who said in his research article that universities in the United Kingdom were developing collaboration with partners in the East. This often resulted in academic staff with little understanding of Eastern Cultures, imposing Western designed Virtual Learning Environment (VLEs) and lacking consideration of the learning styles and educational experiences of Eastern students. Literature reveals that there are cultural differences in learning and teaching. According to Ibid (2014): There are also differences in personal theories of learning and constructs for international students. The challenges are also identified in studying second language.

The project of Boulton (2014) focused in identifying the needs of Hong Kong students enrolled on a UK-based course with different expectations and needs in using a VLE to support their learning as compared to the students in UK.

The research concluded that Hong Kong students were reluctant to engage due to unconscious ethno-centric bias of the design of course materials and use of the VLE but significant changes have been shown recently by Hong Kong students in VLE and there is higher level of engagement i.e. cultural bias is minimized due to internationalization and globalization in cultural identity.

So, the quality higher education needs ICT-integration and collaboration for inclusive and global education in order to achieve Sustainable Development Goals (SDGs) in Pakistan with quality and inclusiveness in higher education using Theoretical Relativistic Framework as developed by Khan (2014, 2015) for research in education as the main function of the university (Figure: 8) with the application of theories of learning and instruction i.e. Behavioristic, Cognitivist and Constructivists (Khan, 2016) for teaching, learning, assessment and learning environment at the universities in all disciplines with tech-knowledgy (Khan, 2008, 2016 & 2017) and cognitive apprenticesips in instruction.

RESULTS AND DISCUSSION

The research study can be summarized into the following results for quality higher education in Pakistan in order to achieve SDG # 4 in Pakistan (using Fairclough Framwork of CDA):

1. The 1st boundary explored for quality in teacher and higher education through ODE is total quality of higher education that can be achieved through ICT-integration in higher education programs to make it multimodal and flexible (structure, process and outcome) for both users and providers perspectives (Fig: 2).

2. The 2nd boundary for quality is to make learning more open and flexible through ICT-integration in both F2F and ODE (Open and Distance Education) so that it becomes available through any mode i.e. Multimodal Education System. So, that self-regulated learning and critical thinking is developed through cognitive apprenticeships in higher education (Fig: 3) with application of learning theories in teaching, learning and assessment.

3. The 3rd boundary for quality is to make higher education accessible to all through the use of MOOCs and OERs (Ubiquitous and mobile learning) in both F2F and ODL systems (Fig: 4) with focus on Open access to journals and publications (content) in different universities of the world and using LMS, CMS with Assistive Technologies (ATs).

4. The 4th boundary for quality is to incorporate the new trends of blended learning and e-learning for Virtual Learning flexibility in both Face to Face (F2F) and Distance Education (ODE or ODL) to become self-regulated and life-long, continuous learning and hence inclusive as well as open and flexible for all (Fig: 5) to achieve SDG # 4.

5. The 5th boundary for quality is to have more convergence of open and flexible education so that it can be provided both through F2F an ODL (Flexibility and Openness in content, structure and delivery) as shown in (Fig: 6) by using ICT tools and apps as well as Assistive Technologies (ATs) for delivery and presentation multimedia.

6. The 6th boundary for quality is to use web-streaming of lectures and tutorials in higher education through ICT-integration for making it more open and flexible (Synchronous and Asynchronous Presentations in both F2F and ODL Systems) as shown in (Fig: 7) with multimodal institutional framework.

7. The 7th boundary for quality is the use of multimedia presentations, Instructional Design (IDs) and mobile learning strategies (Inclusiveness and learning style diversity) with the application of learning theories and cognitive apprenticeships for self-regulated and creative learning thought out their life.

8. The 8th boundary for quality is the use of text mining techniques in discussion fora for arguments and critical as well as creative communications (plagiarism and trend detection) with focus on Personalized Instruction through ICT using Skinnerian Theory and model; besides other Personalized Learning Networks (PLN) and cognitive strategies.

9. The 9th boundary for quality is to have an international and global teacher and higher education programs to integrate various cultural diversities and inclusion of all types of students (Collaboration and globalization with focus on localization also) using theoretical relativistic framework for research in education (Fig: 8) and application of the theories of instruction and design in e-learning as well as online Learning Management System (LMS) and Content / Course Management System (CMS) for networking, research sharing and communication of practice and learning as well as self-regulation in the community of practice and developing critical thinking with creativity.

CONCLUSIONS

The results and discussion can be concluded to answer the research questions and achieve the objective of the study.

1. There are many new frontiers and boundaries in teacher and higher education in Virtual Learning Environments Frameworks (VLEFs) to converge and separation is not possible in both F2F and ODL systems when analyzed for quality of higher education with ICT-integrated tools and technologies.
2. The new boundaries are blurred and can be integrated to converge both F2F and ODL systems of higher education and programs through the use of ICT-technology, tools and resources for quality higher education in Pakistan as in the present Scenario of Covid-19 (when there are closures of the institution due to lockdown).
3. The new boundaries of higher education through ODE can be blended for making teacher and higher education programs ICT-integrated, multimodal, flexible, self-regulated and cost-effective as well as qualitative in the era of globalization in education and trends for inclusion of all students to achieve SDG # 4.

➢ Hence, the objectives of the study are achieved because there are points of convergence in both F2F and ODL systems when ICT-integrated Virtual Learning Environment Frameworks are used for quality higher education in Pakistan inorder to achieve Sustainable Development Goals (SDGs) through quality and inclusion in higher education of Pakistan.

SUGGESTIONS AND RECOMMENDATIONS

On the basis of results, discussion and conclusions; the following suggestions and recommendations are made for all stakeholders in Higher Education of Pakistan:

1. The education policies and plans may focus on ICT-integrated teacher and higher education programs and systems for making it qualitative, standardized, efficient, effective and cost-benefited.
2. The curriculum experts and course designers must design courses such that they provide flexible learning environments through the use of ICT-tools, technologies and resources in both F2F and ODL systems.
3. The higher education institutions and providers must focus on infrastructure suitable for qualitative, standardized, self-regulated and ICT-integrated systems for globalization and openness with local identity and indigenous materials and designs for developing self-regulated and creative strategies.
4. The institutions/ providers must create their own MOOCs and OERs for making higher education both local and international as well as global for both providers (Institutions) and users (Students) with creative common networks and licensing for openness and flexibility as well as inclusivness.
5. The researchers / program evaluator must focus on total Quality Framework of higher education including theory, practice and technologies (three-dimensional analysis) for structure, process and outcomes to be aligned with international standards and designs in higher education with global trends and perspectives.
6. The government must ensure that all teachers and higher education programs are having Quality Assurance mechanism and an Accreditation Councils be established for accrediting the programs with ICT-integrated technologies, tools and assessments with focus on standardization of knowledge and skills in both F2F and ODE Systems focusing international standards and local context.
7. The teacher's attitude must be changed from On-Site teacher to online tutor in order to built community of practice through social networking sites / social media and networking in the scenario of globalization as seen in Covid-19 lockdown and closure of institutions in Pakistan to promote PLNs for life-long learning.
8. The teachers / educators must use ICT-technologies, tools and resources in their classrooms, assignments and assessments as well as instructions and teaching design to facilitate students at their homes and other places with ubiquitous gadgets and apps through multimedia and multimodal infrastructure.
9. The students skill to use ICT for self-regulated and life-long learning be developed to encourage them for Critical Thinking and Creativity in Community of practice for efficiency and competition through the use of cognitive apprenticeships and self-regulated learning and assessment with application of learning theories in instructional designs.
10. A Virtual Learning Environment Framework (VELF) is needed in higher education of both F2F and ODL to make learning more flexible, standardized, cost-effective, efficient, inclusive and qualitative to achieve all the Sustainable Developmental Goals through SDG # 4 of education encompassing all other SDGs up to 2030 in Pakistan.

FURTHER RESEARCH

The researchers intended to conduct another study for developing a new model of teacher and higher education program in three dimensions of theory, practice and technology so that the theory is converted into practical applications through further research in the field (Insha Allah).

The researchers have presented a paper of Re-thinking and Re-visualizing higher education in ICORE, 2016 to further advance their research for flexible university model development in Pakistan.

The researchers papers on tech-knowledgy (series) will be further explored for quality instruction, assessment and learning through ICT-integrated tools, technologies and resources used in Virtual Learning Environment Frameworks (VLEFs) in multimodal universities of the 21st century all over the world (Insha Allah).

CREDIT AUTHOR STATEMENT

Yousaf Khan: Conceptualization, Methodology, Data curation, Writing- Original draft preparation, Implementation.
Naveed Sultana: Supervision, results Validation, Reviewing and Editing.

COMPLIANCE WITH ETHICAL STANDARDS:

It is declared that all authors don't have any conflict of interest. Furthermore, informed consent was obtained from all individual participants included in the study.

REFERENCES

Boultan, H (2014): Cross Cultural Comparison: The introduction of new technology with postgraduate students in Hong Kong and the United Kingdom. Nottingham University UK.

Choi, S & Lim, S.S (2014): An Enhanced Adaptive Educational Hypermedia System Framework for modern distance education. The Open University of Hong Kong, Hong Kong SAR, China.

Donanher, A.P & Umar, A (2010): Perspective on distance education: teacher education through open and distance learning. Common wealth of learning. Canada.

Donanhar, A.P & Umar, A (2010): Creating New Perspectives on teacher education through open and distance learning (Chapter # 13) printed in Canada.

Halong, W.A, Kam, K, M & Sodsa, S (2014): Forming communities of dispersed students to facilitate flexible education. King Mong Kut's University of Technology. North Bangkok, Thailand.

Harry, K (2003): Higher Education through Open and Distance Learning: Rutledge, New York

Hirata, Y & Hirata, Y (2014): Web-based Corpora for open and flexible language learning: Japanese students needs and preferences: Hokkai, Gakuen University, Sapporo, Japan.

Jin, H (2014): Research on student learning behavior in using social media. Shanghai International Studies University, China.

Khan, Y (2013): ICT-Integration in Teacher Education of Pakistan: A Case Study. AAOU (2013), AIOU, Islamabad. Published in Pakistan Journal of Education Vol. XXIX,   Issue I & II, 2012 (Publishing Year 2015) ISSN 1818 - 334458 Faculty of Education, Allama Iqbal Open University, Islamabad

Khan, Y (2015): Developing a Relativistic Framework for Open and Flexible Learning. A New Trend in Educational Research. Journal of Mathematics and System Sciences, David Publisher, USA.

Khan, Y (2015): Emerging Factors Affecting Blended Learning in Virtual Learning Environment Framework. Sino-US English Teaching, March 2016, Vol. 13, No. 3, 197-203 doi:10.17265/1539-8072/2016.03.004, David Publisher, USA.

Khan, Y & Yousaf, H (2016): Developing Web Textbooks for Teacher Education in Pakistan: An Innovative Approach for effective e-learning. David Publishing Company. US-China Education Review A. December, 2016. Vol 6. No.12

Khan, Y & Sultana, N (2016): Assessing the Effectiveness of the Application of Learning Theories for Teaching Physics at Secondary Level, IER, University of Peshawar.

Khan, Y (2017): Tech-knowledgy: Rethinking, Reshaping and Redesigning Assessment for Learning in Virtual Learning Environment Framework (VLEF). *ICORE, 2017, Open University of Hong Kong (OUHK).*

Khan, Y & Sultana, N (2020): Developing Advance Cognitive Apprenticeships Model for Making the students creative and self-regulated learners, International Journal of Psychosocial Rehabilitations, Vol. 24, Issue. 08, 2020, ISSN: 1475-7192. Pp. 231 – 249, DOI: 10.37200/IJPR/V24218/PR280025.

Khan, Y & Sultana, N (2021): Effectiveness of the Cognitivist Theories Application at Secondary School Level in Pakistan, *VFAST Transactions on Education and Social Sciences, Volume 9, Number 4, October-December, 2021, pp: 60-69, ISSN(e): 2309-3951, ISSN(p): 2411-0221.*

Lai, O.C, Yu, W.H, Pang, W.M & Tang, J (2014): Towards a Mobile Learning Environment at the Caritas Institute of Higher Education. Caritas Institute of Higher Education, Hong Kong SAR, China.

Lee, N.C, Lam, C.S, Lui, K.A & Pang, B.O (2014): Enhancement of psychomotor skills through flexible learning in nursing education: A quasi-experimental study on respirator donning. The Open University of Hong Kong and Tang Wan College, Hong Kong SAR, China

Lee, Y.K, Wong, K.A, Lee, K.J, Yuen, W and Yip, C.J (2014): Development of an Instrument for program evaluation: An illustration from nursing program. The Open University of Hong Kong SAR, China.

Li, C.K (2014): Blended Learning for flexible satisfaction of student needs. The Open University of Hong Kong, Hong Kong SAR, China

Li, C.K & Lim, H (2014): Open Education and Flexible Education: Meanings and Trends. The Open University of Hong Kong, Hong Kong SAR, China.

Li, C.K & Yuen, S.K (2014): Emerging modes and approaches in open and flexible education, The Open University of Hong Kong Press. ISBN: 978 – 988- 8238 – 05 – 7

Mc Grath, N & Blackburn, A (2014): Educating the 'Net Generation': Enhancing student engagement with web 2.0 tools and mobile technology in music education. University of New England, Australia.

Ng, Y.R & Leung, P.C (2014): An empirical study on using web-based social media to build a learning community Vocational Training Council, Hong Kong SAR, China

Sun, S, Kim, K.W & Lee, S.G (2014): A mobile graphing tool for flexible learning: Sage Grapher. Sung Kyun Kwan University, Korea.

Tang, J.K.T, Pang, M.W, Wang, P.P, Chau, S.T & Ling, Y.L (2014): Enabling a flexible university education through an Augmented Reality interactive interface The Open University of Hong Kong, Hong Kong SAR, China

Towey, D (2014): Open and Flexible Learning as an alternative in mainland Chinese Higher Education. The University of Nottingham Ningbo China.

Tsang, E, Yuen, S.K & Cheung, B.P.P (2014): Effective Instructional Design for Mobile Learning. The Open University of Hong Kong, Hong Kong SAR, China

Wang, L.T, Ho, S.W, Tang, T, Wang, L.F & Chang, G (2014): Applying Text Mining Techniques in Open Learning. The Hong Kong Institute of Education and Caritas Institute of Higher Education, Hong Kong.

Wong, K, Ho, W.S, Wang, L.F, Kwan, R & Leung, K (2014): The design and implementation of a Mobile App for language learning: Caritas Institute of Higher Education, Hong Kong SAR, China

Yuen, F (2014): Use of Instant Messaging communication in teaching and learning. City University of Hong Kong, Hong Kong SAR, China

Yuen, S.K, Tsang, E & Cheung, B (2014): Evaluating the effectiveness of mobile learning modules for the enhancement of language proficiency. The Open University of Hong Kong, Hong Kong SAR, China.