Developing Theoretical Relativistic Framework for Research in Open and Flexible Learning: A New Trend in Educational Research

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Abstract: The purpose of research study was to develop a theoretical relativistic framework for research in open and flexible learning environment because it is a new dimension in the field of education. Developing a theoretical relativistic framework for any research study is first and prime step in walking on the track to reach the distinction set by the researcher. Open and flexible learning is a new trend in education, enriched with ICT-use as a basic demand of the 21st century generation in all parts of the globe. So, it requires a theoretical framework for its initiation, implementation, development and evaluation which is relatively developed and advanced from the existing framework. In any research study the literature review is carried out in order to develop, build or construct a theoretical framework. The researcher of the study has observed while attending the international conference on ODL (AAOU, 2013) that most of the studies require theoretical underpinning for ICT-use in education. The researcher assume that being a new trend in education to use ICT for teaching learning purpose; it requires conceptual clarity and theoretical background of the user and researcher, because, without theory the practice is wastage of money, time and energy and it becomes ineffective and requires relatively new conceptual development. So, the problem stated by the researcher for the study was: Developing theoretical relativistic framework for research in open and flexible learning: A new trend in educational research. The objective of the study was integrating the interrelated concepts to build a pnemonological network for identifying the constructs in ICT-rich open and flexible learning environment. The study was significant because it provided theoretical background for conducting research in ICT-use for teaching and learning through open and flexible systems; whether blended or online learning and training. The methodology used by the researcher was qualitative and interpretive because there were reviewing of literature and meta-analysis for building the framework. The data were analyzed and interpreted by the researcher for the findings and drawing conclusions. On the basis of conclusions the researcher has made suggestions and recommendations for conducting research in open and flexible learning environment by using this theoretical relativistic framework. The framework was named as Virtual Learning Environment Framework (VLEF).

Keywords: Open and flexible learning, Research in ICT, Research in open and flexible learning, Pnemonological network in ODL and ICT.

1. Introduction: Virtual Learning Environment Framework (VLEF)

The framework developed by the researcher for the conference ICRA (2015) was based on the review of models, frameworks, theories, strategies and tools (interdisciplinary and cross disciplinary). The literature for reviewing was made available by ICT tools in open and flexible learning environment at the researcher life space (integrated study).

The approach of the researcher was pragmatic and interdisciplinary as well as cross disciplinary in order to find a discipline which best suit to explain all the relevant and related concepts (pnomenological network) in the motion of a person towards the knowledge peak (wisdom) against the gravitational potential and to find competence in a discipline with the availability of scientific and psychological tools.
and vehicles or resources to reach to the peak of global knowledge (wisdom); so that his/her knowledge become virtual and global but at the same time measurable in the field of education (Fig. 11). Knowledge development is relativistic in nature and it is developed iteratively.

The researcher has found that the universe is material and a person (as a mass) is a part of it; and when the knowledge globe is iteratively developed, he/she also develops to move to the new step with incremental increase (change) in knowledge use through the help of tools (or resources) in a spiral manner (spiral framework of software development), using interaction in an instantaneous activity (small time) to provide experience for adaptation and development in a life space (Fig. 5).

The researcher found that the person has both body and mind. The body is physical but the mind is psychological and dependent on thinking process. So, it requires measurement and evaluation of both qualitative and quantitative characteristics or variables of his knowledge in the globe for assessment and evaluation in the framework. The researcher found that the disciplines of physics and psychology has the capacity to explain these phenomena; because there is motion in developmental process towards wisdom (Fig. 4 http://learning.pknursery.com/) and can be explained by the laws, theories and principles of physical sciences and personality development theories of psychology when we take the person as an energy system (Sigmund Freud theory of personally development).

In this system person (mass) is having a potential energy (P.E) and can be converted into kinetic energy (K.E) to make this system dynamically integrated but measurable and observable (Fig. 1 http://learning.pknursery.com/). So, the framework is used to develop the person’s knowledge through the concepts of energy and motion to such an extent that the Einstein’s theory of relatively (E = mc²) and Quantum theory of mechanics (small energy) can be applied for his incremental increase in his knowledge and comprehension (scaled agile framework of software development) and causes evolution (biological and psychological) frameworks.

In this evolution the theory base is that of Charles Darwin, survival of the fittest and natural selection. Knowledge getting is a life-long and continuous process and ends when the life space is made fixed in grave (Islamic perspective and religious belief) while the spirit (soul) remains alive.

It means that the person is moving from real knowledge (in a place) to virtual knowledge (in space) to make it global knowledge (Figs. 1-11 http://learning.pknursery.com/). This traveling is made possible by modern technological tools and social networking technologies and the progress is continuous and life-long which is the quest of Virtual Learning Environment Framework (VLEF) developed by the researcher in this study using interdisciplinary and cross disciplinary Critical Discourse Analysis (CDA) and vision in the field of education for open and flexible learning.

2. Basic Assumptions of VLEF:

The researcher has developed the following assumptions for the theoretical relativistic framework of open and flexible learning:

(1) The person is in the knowledge globe and can be developed to the peak of this globe (wisdom) by using tools and technologies (toolkit) in open and flexible learning environment.

(2) The person approaches and moves towards his/her destination with the help of tools (resources) and gadgets (devices) available due to scientific inventions and technological developments.

(3) The person motion towards the knowledge field in the globe is interdisciplinary or contextualized (cross disciplinary).

(4) The person motion towards the peak of knowledge (wisdom) is personalized (interpretive).

(5) The person progress in the fields of knowledge
is measurable and evaluated by using research tools of
Critical Discourse Analysis (CDA) in a discursive
practice (community of practice). Such as the

(6) It requires incrementally developed software to
evaluate researchers and their researches in open and
flexible learning environment or education.
(Relativistic knowledge).

(7) The unit of analysis can be iteratively developed
from real to virtual knowledge in a field to become
philosophical and spiritual. (Knowledge in disciplines
and discursive practice).

(8) The person’s knowledge can be measured by
using scaled agile framework for software
development in Pnemonological network. (To find the
knowledge gap filled by the person).

(9) A multi-dimensional framework is also needed
for evaluating the total quality of open and flexible
learning and education. Interdisciplinary and cross
disciplinary).

3. Objectives of using VLEF for Research

(1) In educational research the new approach is to
evaluate the researcher when there is integration of
ICT and education (interdisciplinary and cross
disciplinary). The researcher must use an integrative
framework developed through the modern scientific
inventions for the development of education for all in
a democratic, Open and Flexible Virtual Learning
Environment (OFVLE) by using the tools of social
networking and mobile technology for autonomy,
collaboration, interaction, communication and
information exchange known as software of Learning
Management System (LMS) for virtually open,
distance and flexible environments.

(2) The best methodology for evaluation is analysis
of the discursive practice and discourses for dialogue
(interaction), structure (program) and practice
(learner’s autonomy and collaboration in a
community).

(3) The evaluation is not possible without using a
software for discriminating disciplines in the field
and developing the person’s intelligence and
knowledge to an artificial level known as artificial
intelligence or virtual knowledge (scaled agile
framework).

(4) The knowledge development or incremental unit
is very small and instantaneous (scaled agile
framework) but its impact is wide in scope (Spiral
framework and iterative framework).

(5) The motion is relative and interpretive (potential
dependent) in a constructivist learning environment
(optimum iterative framework).

(6) Developing Critical Discourse Analysis (CDA)
is an authentic methodology for research in education
to find gap and ambiguity in existing research
(waterfall framework) and filling that gap to form a
new whole (integrated) form or structure (meaningful
learning) to convert it into new research (Scaled agile
framework).

4. Discussion and Diagrammatical
Presentation of VLEF (Pnemonological
Network)

The VLEF has been diagrammatically presented in
(Figs. 1-12 http://learning.pknursery.com/). The
VLEF has twelve stages of development in its
Pnemonological network.

(1) Globalization of knowledge: Real and Virtual
Framework (Fig. 1)

(2) Physical science framework (Fig. 2)

(3) Motion of person in the field of real and social
knowledge (Fig. 3)

(4) Developmental theories (psychological)
framework (Fig. 4)

(5) Activity system (Constructivist learning)
framework (Fig. 5)

(6) Person-situation theory of construction of
knowledge framework (Fig. 6)

(7) Anchored theory framework (Fig. 7)

(8) Web-based knowledge and social networking
framework (Fig. 8)
(9) Stepping in the virtual space: Global knowledge framework (Fig. 9)
(10) Virtual web-based interaction (community of practice framework) (Fig. 10)
(11) Unit of analysis framework for global virtual knowledge (Fig. 11)
(12) Multi-Dimensional framework for evaluating total quality in Open and Flexible System (Fig. 12)

1. Globalization of knowledge: Real and Virtual Framework (Fig: 1)
2. Physical science framework (Fig. 2)

Fig. 2  Physical science framework (Person or Mass) born in a place with potential to move in the Real knowledge field due to the influence of environmental forces: (Push & Pull)
3. Motion of person in the field of real and social knowledge (Fig: 3)

Fig. 3  Motion of the person (as mass) in the field of knowledge from reference point or origin.
4. Developmental theories (psychological) framework (Fig: 4)

- Time interval (t)
- Need, instinct, motive, interests, reinforcement and feedback
- ICT tools and rules in the environment (Computer, mobile, software etc.)
- Further motion due to forces.

Person with more knowledgeable others (peers, teachers, parents etc) (Vygotsky’s Theory)

Gap of knowledge is widened (S) due to further motion in the knowledge field

ZPD is created

Fig. 4 Developmental theories framework for physical development and learning
5. Activity system (Constructivist learning) framework (Fig: 5)

Fig. 5 Activity system (constructivist learning) framework: Person utilizing tools (ICT or non ICT) for getting knowledge due to needs and motive with different styles (Open and flexible knowledge).
6. Person-situation theory of construction of knowledge framework (Fig: 6)

- Person in discursive practices.
- Knowledge is directed in a practice.
- Networking in community (social network for collaboration).

**Fig. 6  Person-situation theory of construction of knowledge**

- Person-Situation (Role, Rules and Relations)
  - Dialogue and communication
  - Community of practice
  - Meta cognition
  - Emotional intelligence
  - Motives, interests and needs of practice (reinforcement and feedback)
  - Using tools for getting knowledge in a discursive practice (Networking).

- Water fall Framework of Software Development
- Tools (ICT or no ICT)
  - Relationship and interaction etc.
  - Roles: Student or teacher etc.
  - Timing: Schedule of activities.
  - Software: Developing knowledge in the globe.

- Motion: Accelerated and made global due to networking in the knowledge globe.
- Networking through ICT tools
- Situated Knowledge (Community of practice)
- ZPD is created for global knowledge in the network of community.
- Activity in a practice

- Interactions: Peer to peer, student-teacher and student-interface.
7. Anchored theory framework (Fig: 7)

Fig. 7 Anchored theory of person is creating networks with related practices in the globe (Web is created)
8. Web-based knowledge and social networking framework (Fig: 8)

Fig. 8  Web-based knowledge and social networking (Community of practice).
9. Stepping in the virtual space: Global knowledge framework (Fig: 9)

- Community of practice is reduced
- Time for networking is reduced
- Social networking are used for peer-to-peer interaction
10. Virtual web-based interaction (community of practice framework) (Fig: 10)

- Integrated evaluation
- Interdisciplinary and CDA

Philosophical: Discourse is critical and complex

Person is at the peak of knowledge (Wisdom)
Person is in a place of space with virtual knowledge

Fig. 10  Virtual web-based interaction: Smaller community of practice network in the virtual space (knowledge sharing or collaboration within community of practice).
11. Unit of analysis framework for global virtual knowledge (Fig: 11)

Fig. 11  Unit of analysis, iteration and line framework for activity system in virtual knowledge.
12. Multi-Dimensional framework for evaluating total quality in open and flexible learning system (Fig: 12)

![Octagon of open and flexible education](image)

Fig. 12  Octagon of open and flexible education.

5. Background of the Study (Methodology)

The study was aimed at developing a “framework” for research in open and flexible education in the context of ICT-rich environment to make provision of open and flexible education; evaluation and qualitative interpretation for ICOFE (2014) in the Open University of Hong Kong. The study was modified for making it relatively developed for ICRA (2015) at the University of The Punjab, Lahore on the eve of 100th anniversary of Einstein theory of general relativity. The researcher found that Critical Discourse Analysis (CDA) framework was leading towards Virtual Learning Environment Framework (Figs. 1-11) and was best suited for this purpose.

The requirements of critical discourse analysis (CDA) and VLEF (Virtual Learning Environment Framework) were enlisted as:

- Activity analysis (process of learning in constructivist environment)
- Interaction analysis (social and cultural aspects)
- Communication analysis (dialogue, discussion and communication)
- Conversation and dialogue analysis (Discursive practices and structure): Text Mining Software
- Discursive practice analysis (Evaluation of practice)
- Focus group discourse analysis (Developing the practice)
- Analysis for integration in discursive practices (Interdisciplinary and cross disciplinary integration and analysis)
- Analysis of globalization in discourse (Whole integration for filling the gap in virtual environment) through scaled agile framework by using Pnemonological network for various constructs.

6. Need Analysis of Researchers in Virtual Learning Environments (VLEs)

In globalization due to technological advancements, there are needs of the researcher for Critical Discourse Analysis (CDA) of dissertations, theses, research papers, posters, practices, theories, articles, artifacts and tools:

Unit of analysis for activity in virtual leaning
environment is needed to evaluate holistic approach for integration.

Common language is needed to analyze the dialogue in a discourse (situated in community).

- Unit of analysis in a discourse is needed (for common language analysis).
- Unit of analysis in a practice is needed (for competence or life skill knowledge).
- Unit of analysis in a structure for cognitive tools and strategies or toolkit is needed (for knowledge utilization).
- Unit of analysis for integration is needed (for interdisciplinary and cross disciplinary approach determination and evaluation).

7. Need Analysis of Researches in Education (Open and flexible learning)

Education is a field consisting of various disciplines and is dependent on educational activity starting from simple task in which there is S - R or S – O - R interaction in an environment or surrounding. So, it can be analyzed from biological, psychological, ecological, temporal, spatial, political and religious (cultural) perspectives in a place or life space. His/her knowledge is directed toward the educational field in a multiple meaningful layers of knowledge development (Iterative cycles). So, knowledge is multiphasic.

The knowledge development is open (for all) and flexible (time independent) due to relative motion of person in a knowledge discipline towards the peak of the field (wisdom). It means that flexibility is created due to schedule and time for motion in life space. So, motion is relative and not absolute.

The motion towards the peak of the field (wisdom) is accelerated by modern technologies and tools due to the application of theories in the field; to develop methodologies, techniques, strategies, tools, models, theories and frameworks and also to create artifacts in a practice; hence making the process of getting knowledge mechanical and automated (theory into practice). Hence, acceleration is made possible by tools and technologies.

Due to these technologies the person is able to move in all directions in the field of knowledge. The recent invention of social networking has converted the field of knowledge into knowledge globe by using a unit activity of the constructivist learning environment system (theory of construction) and is iteratively and spirally developed to form the globe of knowledge (wisdom) as an integrated whole. So, knowledge is integrated (interdisciplinary and cross disciplinary).

Hence, the globalization has created a gap in the already existing frameworks of learning due to open and flexible learning opportunities of getting knowledge through artifacts and tools using different learning theories and pedagogies (review of learning theories and pedagogical mapping). Globalization has created gap in knowledge by making the knowledge virtual and abstract.

So, this research in open and flexible learning in ICT-rich environment has made the existing research methodologies integrated into linear framework and models for making it more realistic, objectives and scientific. But due to social interaction it cannot be made fully realistic and remains always interpretive, context dependent and qualitative. Therefore, both qualitative and quantitative research is needed in open and flexible education.

Moreover, when the knowledge in the field of education is global, virtual and interpretive due to the person situation or position in the field at a point on the globe (life space situation theory). There are eight dimensions of open and flexible learning in the knowledge globe to develop an octagon structure Fig: 12 (Geometrical perspective):

1. Open (for all): Democratization of education all over the world is needed (Internationalization). Kim, C (2013)

2. Space (place): location with reference to a point (position): Transactional theory of Distance Education (DE) is needed. Jung (2001)
(3) Time: to cover distance in the field with a pace (schedule): Flexible timing is needed (Scaled agile framework of software development)

(4) Individuals needs and styles (force of motion): Diversity of structure, media and dialogue (IDs) is needed.

(5) Autonomy as well as collaboration: Diversity in modes of delivery and Instructional Designs (IDs) is needed.

(6) Quality: authentic, efficient and effective learning environments are needed.

(7) Relevance: market, society-related, futuristic and individual based-learning is needed.

(8) Total quality-based-framework: covering the quality of all the aspects of education system including research is needed.

When it becomes flexible in all the eight dimensions: open, space, time, pace, need and style flexible, autonomy and collaboration, relevance, quality and total quality framework; it becomes fully flexible and open education system (Octo-Dimensional framework).

So, the open dimension brings democratization and internationalization in education while the dimension of time is to bring flexibility in task performance schedule and is more critical and discriminative dimension for flexibility and rigidity, because, other dimensions are dependent on time (schedule). Time is needed or required to move (slow or fast) referring to the pace (autonomy). Hence, we can conclude that if time (schedule) of learning is flexible and according to the persons’ need it will make learning flexible in a real sense.

Time is core component of flexibility in open system of education.

Flexibility can also be determined by its integration of traditional forms of education (multimedia and hypermedia). The other characteristics of open and flexible learning are anytime, anywhere i.e. synchronous and asynchronous (ubiquitous) this is also made possible by mobiles (m-learning), and ICT technologies in virtual learning environment (VLEs).

So, in an ICT-rich environment the knowledge is integrated (interdisciplinary) and the learner is in the globe of knowledge (Real and Virtual) with his own community of practice, and having virtual and real social interactions (collaboration) and discourses; moving on in an autonomous ladder for knowledge development to have self-actualization (Highest form of needs hierarchy) and contributions in the knowledge globe (utilizing wisdom).

8. Findings

The framework developed by the researcher in this study was based on the interdisciplinary and cross disciplinary review of literature and experience in the
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Field of education and can be used as an epistemological, ontological and methodological guide for research evaluation in open and flexible education phenomenon. The approach is based on Critical Discourse Analysis (CDA) framework and is named as VLEF (Virtual Learning Environment Framework) and its nature is relativistic and virtually synonymous with Einstein theory of relativity in the conversion of real knowledge (mass) into virtual knowledge (energy). Here energy refers to wisdom.

9. Conclusion

Keeping in view, the above discussion, a framework was developed by using activity system framework construction with mapping of scaled agile framework for software development to be used by a researcher to situate or position a discourse, theory, practice, artifact and tool developed by another researcher in education through critically analyzing the discourse for filling the gap in knowledge and development of education.

So, the best method to reach to the peak of all knowledge (ontology of wisdom) in open and flexible learning is Critical Discourse Analysis (CDA) in a field of knowledge.

10. Suggestions/Recommendations:

The following suggestions are proposed and recommended:

1. The (VLEF) framework is to be made a prototype (software) used in educational research evaluation related to the fields of education and ICT.
2. It can also be used as a developed model framework for evaluation of researchers in open and flexible learning environment and education.
3. It is proposed that the researchers may use Critical Discourse Analysis and VLEF as best and suitable methods for the evaluation of researches grounded in ICT or e-learning or virtual learning environments (a software is needed for it).
4. A further research is suggested for its theoretical underpinning, more grounded in theories of learning and software development and applications.
5. The name suggested for the framework is Virtual Learning Environment Framework (VLEF) for open and flexible learning and education.
6. It is also proposed that VLEF require Critical review by other researcher in the field of education and e-learning.
7. The new knowledge developed in educational

![Octagon of open and flexible education system for new research in education.](image-url)
research is to be evaluated on the basis of relativity and not on absolute scale. (Knowledge development is relativistic in nature).

11. Significance of the Study

The study was significant because it had provided a framework for research in education taking place in open and flexible environments; where there are variety of ICT tools, approaches and social networking technologies to provide virtual learning opportunities across the globe and throughout life.

The study would be helpful in all disciplines in the field of education because of its interdisciplinary and cross disciplinary approach in educational research.

References


