Quadrant-I (e-Text)

Details of Module and its structure

Module Detail	
Subject Name	**Education**
Course Name	**ICT in Education**
Course Code	**EDU504**
Module Name/Title	ICT for professional development: tools and opportunities: electronic teaching portfolio; technology and design based research.
Module Code	IIE015
Pre-requisites	Basic knowledge of hardware and software, MS office applications and web browsing
Learning Outcomes	After going through this lesson, the learners will be able- 1. to discuss the ICT tools utilized for professional development of teachers 2. to reflect upon the purposes and functions of e-teaching portfolio 3. to describe the basic concept of technology based research and the ICT tools used for it 4. to discuss the basic concept of design based research and ICT tools used for it
Keywords	ICT tools, professional development, e-teaching portfolio, technology based research, design based research

5. **Development Team**

Role	Name	Affiliation
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1. Introduction

Integration of Information and communication technology (ICT) is gaining impetus in teacher education as a tool of paramount importance for professional development of teachers with technology mediated training and interactions. It is being infused with teacher education programme in the form of CD ROMs, DVDs, application software, digital library, teleconferencing, web conferencing, web based learning, online classes, online courses, blended learning, flipped classes, virtual lab, virtual field trip, video games, interactive videos, animations, streaming videos, podcasts, e-assessment through e-portfolio and e-rubric and so on. Thus, the challenge of preparing and developing teachers capable of employing a variety of technology for academic, administrative, research and extension purposes is being immensely felt in teacher education programmes in India. The UNESCO report (1998) on "Teachers and Teaching in a Changing World" also highlights the need and importance of ICT in professional development of teachers and emphasizes on development of teachers equipped with necessary knowledge, skills and attitude to adapt them to technology enabled learning.

In the context of ICT, teacher professional development can be visualised as a continuum of top-bottom control to bottom-up control and formality to informality as defined by Hart J (2010) model comprising of 5-stages of workplace learning.
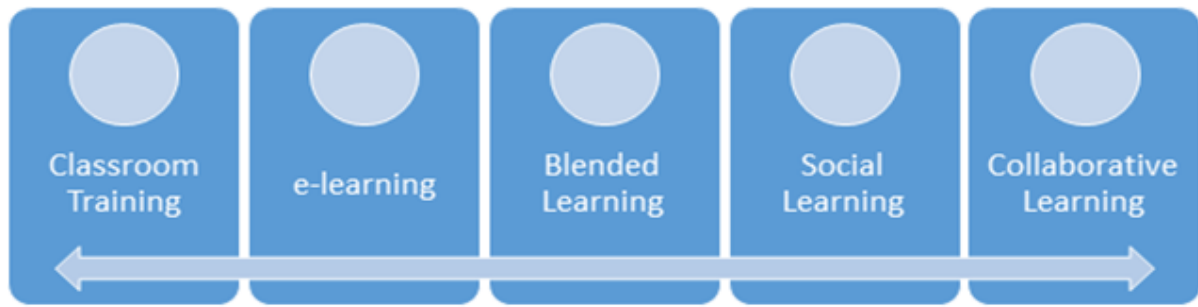
5 Stages of Workplace Learning - Hart J (2010)

According to the above model, the professional development of teachers can be described as follows-

The professional development of teachers begins with formal classroom teaching of initial teacher preparation where the learning activities are designed and managed by the teacher educators. Here, face-to-face learning or in-classroom interaction is pre-dominant. The formal classroom training is then followed by e-learning where the learners have more flexibility of time and space. Here, the learning resources are available in digital form and learning happens mostly in online learning environment. Here, the course is designed and developed by the experts and delivered through online platform. The participants can put forth their queries and give the feedback in the form of e-mail or messages and sometimes forums or chats are also organised. Though the content for the e-learning is same as in classroom transactions, the major difference is in the absence of face-to-face learning. E-learning is now being replaced by blended learning, which is a mixture of face-to-face learning and e-learning. It enriches face-to-face learning with online learning or e-learning and vice versa. Thus, it brings together the strengths of both face-to-face and e-learning modes. Moreover, it enhances teacher-students interaction time through online delivery of the content to be learnt and online feedback. Blended learning is followed by social learning. The aspect of social interaction is added to blended model through the integration of interactive web technology like social media. Here, the participants have relative flexibility in terms of choices of learning experiences. Finally, the teachers reach the stage of collaborative learning

where they develop the professional community. Here, learning and working go parallel. The teachers are self-guided and self-learners. They enjoy the maximum autonomy in terms of designing and managing the learning experiences. They share their ideas and resources with other members of the professional community, thereby a pool of experiences and resources is created which leads them meet the emerging needs of the teaching profession effectively. Integration of web 2.0 tools like wikieducator, blogs and social networking sites can best facilitate the development of professional community. In the last stage of learning in a workplace, one has to collaborate with others as a part of learning. Here, learning and working are assumed to take place together. If the teachers are pursuing online courses their learning must be enabled and supported with online forums or online discussions. Thus, the learning gradually becomes more informal as the teacher moves from extreme left of the continuum of professional development i.e. formal classroom training to extreme right of the continuum i.e. collaborative learning in the context of integration of ICT into the teacher professional development.

ICT can be used for professional development of teachers in a supplementary, complementary, integrated or infused manner. Supplementary model of ICT integration involves development of ICT skills rather than integrating ICT with pedagogy. Complementary model of ICT integration begins to connect ICT with curriculum in various ways. It is also a standalone model but a connection is maintained between technology and pedagogy in terms of its application. However, the applications of technology in education are explained without any practical exposure. This model extends from complementary model by providing the practical exposure of applications of technology in classroom transactions. An infused approach is the one which allows transparent application of ICT in curriculum transaction, wherever and whenever appropriate, to enhance critical as well as creative thinking. ICT integration generally refers to the use of ICT tools (specifically, computers and the internet) to support teaching and learning across the curriculum. Integrated use of technology just not requires the

knowledge of basic skills of ICT but the knowledge of a variety of applications which generates diverse learning experiences for the students. The use of ICT for professional development of teachers requires a shift from knowing basic ICT skills to integrating ICT into teaching and learning in an infused manner.

2. ICT for professional development of teachers: tools and opportunities

ICT can be utilized for professional development of teachers in following ways-

1. ICT can be used as presentation or display tools. IT can be utilized for PPT presentation, display of pictures, images, videos and animations through computer and projector, smartboard and television. Swayam prabha channels and other education channels can be displayed through television and DTH set up box. Guided Web tours and videoconferences can also be displayed. Display of simulations during practice of teaching skills and demonstration of lesson plans is of paramount importance in preparation of teachers in a way that it supports prospective teachers to develop practical understanding of the components of teaching skills and its integration in day-to-day teaching and learning. It provides models and simulations of effective teaching practices. Swayam Prabha video lectures can be used as learning resources for preparation of teachers. Through display the same resource can be seen in the screen by all the prospective teachers at a time which promote in-class understanding and discussion of difficult concepts particularly contemporary social issues related to education.

2. Instead of teaching ICT bas a separate course in teacher education programme, it should be integrated with teaching and learning activities.

3. Web based learning and assessment enables learner support networks, both in face to face and distance learning environments, and in real time or asynchronously. During practice teaching the

prospective teachers can maintain their portfolio using blogs and other online platforms like mahara.org, rubistar etc. which encourages continuous feedback by teachers and peer and most important self-reflection on their professional development.

4. On-going professional development at the school level, using available ICT facilities, is seen as a key driver for success, especially when focused on the resources and skills directly relevant to teacher's everyday needs and practices.

5. ICT has removed the barriers of space, time and place between teacher and learner. The prospective teachers can experience the live classes, online discussion and online assessments through LMS, web groups like Google groups and whatsapp; Facebook live, big blue button, online classroom like Google classroom, EDMODO, online courses, MOOCs, mobile learning and so on.

6. It has established a healthy and interactive relationship between teachers, schools, institutions, and universities. It has also pooled the resources of various institutions. N-list, National digital library, online libraries, Online databases, online professional communities like research gate, academia.edu.in, Wikieducator are some of the efforts in this direction.

7. ICT has revolutionized the conventional pedagogic practices. It has supported the move from teacher-centric to learner-centric teaching methods. Web 2.0 mediated learning has encouraged collaborative and interactive learning ranging from whole-class discussions to individual or small group assignments. It can be used to reinforce existing pedagogical practices as well as change the way teachers and students interact. Blended learning, flipped classes, mobile learning, virtual classes are some of the examples of technology mediated learning strategies which is considerably changing the scenario of day-to-day teaching-learning.

8. Didactic software, intelligent tutoring system and user-friendly feedback mechanism of ICT has made the quality teacher education reach the unreached. Now through offline as well as online software,

interactive web technology, mobile apps, OERs, digital content in the form of multimedia CDs, interactive videos, video games, you tube clips quality of teacher education can be enhanced. NIOS D.El.Ed. programme through Swayam platform also generates the opportunity for expansion of quality teacher education for greater number of aspirants.

9. ICT provides lifelong professional development by providing courses in a virtual situation (online courses), training in demand, orientation and refresher courses through video conferencing and webinars and online discussion through online groups or online professional communities

3.0 Electronic-Teaching Portfolio (e-Portfolio)

Teaching portfolio maintained in digital form is called electronic teaching portfolio or e-teaching portfolio in short. e- portfolios have advantages over other forms of documentation. An e-portfolio can be easily stored, archived and shared without any additional cost. It can be uploaded to any website or as a part of the blog and then can be shared with others. It demonstrates the teaching standards and also includes artefacts that indicate accomplishments of these standards. The multimedia feature of the teaching portfolio allows the teacher to collect and organise the evidences in many media types with hypermedia links connecting the evidence to the appropriate standards. Non-linear web presentation of different components of the e-teaching portfolio as separate pages, blog entries or links allows the viewers to go directly through the links of their interest. The colleagues of the teacher may be more interested in the sample lesson plans and the teaching-learning resources whereas the parents will go through the records of the assignments and projects of their children.

Tools for creating e-Teaching portfolio

Depending upon our choice and the purpose of creating e-portfolio, we may select an appropriate ICT tool for creating e-portfolio. There are many web based applications which can be utilized to create the teaching portfolio.

Web Authoring

It provides us ultimate control to the look and feel of our web site (e.g. Dreamweaver, Flash, etc.) for the e-portfolio. For this we must have a permanent web space to publish our portfolio and are willing to learn a complex web authoring application.

Internet or Web Services

There are many web applications like edu.glogster, Google Apps, WordPress.com, blogger.com, Weebly, Prezi, wix.com, One Note Class Notebook etc. which generate web space for us automatically and provide us with the templates to create and publish the portfolio on the web. The point to be noted that many web applications are not especially designed to create portfolio but its features can be utilised to fulfil the purposes and various requirements of the portfolio. There are following web services which can be utilized to create the portfolio.

How to create an e-teaching portfolio?

3. First of all, we select a web service to get a web space to create the e-teaching portfolio. Based on our need we choose a user-friendly and a compelling web service to create the e-teaching portfolio.

4. We should be careful that URL address of our e-portfolio is easy for our followers to remember.

5. We choose a simple template and a bright and clean colour scheme. We should select and post such pictures and videos of our teaching and student activity which are the best ones and have all proper permissions.

6. Creating various pages for our portfolio or a no. of blog entries to showcase various components of the portfolio.

- **Title page:** Our e-teaching portfolio should begin with a clear title page at the top. The title should be attractive, obvious and persuasive. The viewers or followers of our portfolio should be clear what they are about to view.

- **Clearly labelled navigation:** We should be very careful that our portfolio is well organised and thoughtful. It should have clearly

labelled navigation, as most visitors leave the page if they find the organisation of the page confusing.

- **About me page:** After the title page the portfolio should have an about me page having a short welcome and introduction paragraph and our brief biography. This page may also include a collage of the pictures or 1 or 2 minutes' video showing the teacher engaged in various activities of the institution.

- **Resume of the teacher:** This page should include a summary of our education, skills and experience. It may also include a link to a PDF version of our detailed CV.

- **Teaching philosophy:** It shouldn't be longer than one or two pages. It should include a reflective statement explicitly describing our professional values. It should also explicate the specific competencies that we should demonstrate to reflect those values. It should define the goals of the teachers for their students.

- **Course Descriptions:** This page should include the course objectives, contents, modes of transaction and assessment.

- **Sample annotated lesson plans and learning resources:** It should include the highlights of the sample or model lesson plans and may also provide the links to a PDF version of these lesson plans. These should also provide the links to the learning resources used for the transaction of these lesson plans. We should create creative commons licence for the lesson plans and the learning resources created by us.

- **Successful and interesting learning and assessment activities:** This page showcases interesting and successful learning and assessment activities with its brief descriptions and embedded pictures and videos. These also include outlines of some of the important lectures and snapshots of chalkboard organisation. These may also include the written comments of the students on these activities.

- **Record of the assignments and projects of the students:** This page briefly outlines some of the important assignments, projects, worksheets, charts, models and concept maps of the students.

- **Feedback from peers, parents, and students:** This page includes the quotes from the letters or emails from colleagues, parents and students to us.
- **A contact page:** This page lists our contact address, email address. It can also provide links to our blogs, wiki and social media profiles (Twitter and LinkedIn).
- **Technological interventions:** This page showcases the technology-based lesson plans, ICT mediated teaching- learning resources as well as technology based assignments and projects that we have implemented in our classes.
- **Co-scholastic activities**: This page includes a glimpse of co-scholastic activities like field trips, school exhibitions and school club activities.
- **A blog Page:** It includes overall experiences and reflections on our teaching practices including its successful aspect and as well as the aspect that needs to be further improved. It also devises our best practice in the line of current practices and new developments in the discipline.

4.0 Technology-Based Research

Technology plays a major role in enhancing effectiveness of the research. It helps the researcher since the stage of review of related literature to the stage of writing the research report. Online databases like ERIC, Google scholar, proquest, International Dissertation Abstract, online libraries etc. are one of the important sources of related literature. It provides the researcher an access to large amount of research studies and articles in his research area and thus supports intensive review of related literature.

Technology based research helps the researcher in recruiting the target or subject from a far distant place or remote areas as a sampling unit, For example, if the researcher lives in India and he conducts a comparative study of Indian and American Teacher Education programme and he has to take the interview of teacher educators from America, then he may use skype or chat through whatsapp and facebook messenger, discussions in professional communities like research gate, academia.edu.in for this purpose. He can

use Google forms to create the questionnaire and share it with the respondents to fill it and send it back.

If the targets are busy and it is difficult to make them available in the same place at the same time, we can organise in-person focus group discussion online through web conferencing and online group discussions with skype, big blue button, Zoom, Talk box video chat, google groups, whatsapp group. But, often they can go online multiple times throughout their day, at their leisure, to complete the interview or questionnaire.

In case the subject is very sensitive or the research problem itself is a sensitive issue then the respondent or the subject may hesitate to talk about the research problem in physical presence of other respondents or the researcher himself or herself. An online platform like e-mail, online chat, online questionnaire through Google forms makes it easier for a respondent to share information that may be personal in nature.

Technology based research saves money and the researcher needs not to travel. He can conduct online research with more number of people than he can in case of in-person qualitative or quantitative research for the same cost or even less. Moreover, the respondents can answer whenever they get the time available.

In technology based research the researcher can interact with the respondents over an extended period of time like for multiple days rather than only a few hours. This often leads to richer learning and deeper insights into the respondent's understanding of the phenomenon.

Online databases and online libraries for review of related literature provides the researcher an easy access to large amount of research papers and articles in the concerned research area and thus facilitate him to conduct rigorous literature review.

The researcher can conduct online data collection like online survey through Google forms, survey monkey etc. He may also conduct interview and discussion with the respondents online through skype, zoom, whatsapp, Facebook messenger etc.

Technology based research also involves online sharing of research experiences and publications in the platform of online professional communities like research gate, academia.edu.in and social media like linkedIn and twitter.

Cloud based software like Google docs provides the researcher with research tool that can be used to look up information on the internet properly and easily cite them using MLA, APA, or Chicago citation methods. The researcher can store important information related to the research in the Goggle drive and share it with the experts or other researchers in the field if he requires their inputs into the same. Google forms is a web-based app used to create forms for data collection purposes. Data gathered using the form is typically stored in a spreadsheet.

In technology based research the researcher uses a statistical software packages like SPSS, STATA or SAS for quantitative data analysis. NVivo, Atlas-ti, MAXQDO and other such software of qualitative data analysis helps the researcher in content analysis, transcription analysis, discourse analysis, recursive abstraction, grounded theory methodology and interpreting the information so as to make informed decisions.
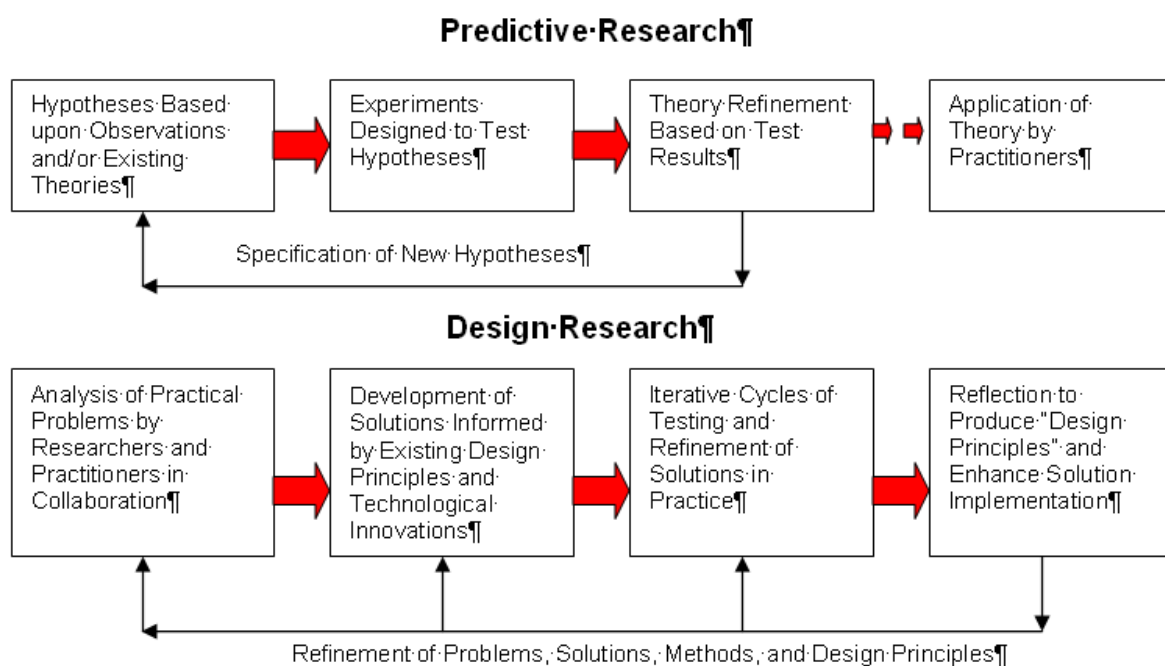
There is reference management software like RefWorks, Zotero, EndNote, Mendely etc. which allow the researcher to manage the references and keep them all organized in an almost effortless way.

Technology based research uses report writing software which offers a step-by-step, logical process of writing the report. It has a simple set of rules to make our writing clearer and easier to understand. Thus, the reports become more impact-oriented. Docear reduces the struggle of the researcher to keep the material organized. This unique literature management tool designed specifically for academics discovering, organizing and ultimately creating academic literature. Spellchecks also adds to the writing process. BibMe allows us to select our choice of APA, MLA or Chicago/Turabian and search for our source from a database of millions, click "add," and download when

we are finished. MindMup acts as an online collaborative mind-mapping canvas perfect for representing ideas and concepts visually.

5.0 Design based Research

The term 'design experiment' was introduced by Brown and Collins in 1992 as a formative research to test and refine educational design based on principles derived from prior research. Design-Based Research is a set of analytical techniques that balances the positivist and interpretive paradigms and attempts to bridge theory and practice in education. It blends empirical educational research with the theory-driven design of learning environments. It is an important methodology for understanding how, when, and why educational innovations work in practice. Design based research aims to uncover the relationships between educational theory, designed artefact and practice.

Predictive·Research¶

| Hypotheses·Based· upon·Observations· and/or·Existing· Theories¶ | → | Experiments· Designed·to·Test· Hypotheses¶ | → | Theory·Refinement· Based·on·Test· Results¶ | ⇒ | Application·of· Theory·by· Practitioners¶ |

Specification·of·New·Hypotheses¶

Design·Research¶

| Analysis·of·Practical· Problems·by· Researchers·and· Practitioners·in· Collaboration¶ | → | Development·of· Solutions·Informed· by·Existing·Design· Principles·and· Technological· Innovations¶ | → | Iterative·Cycles·of· Testing·and· Refinement·of· Solutions·in· Practice¶ | → | Reflection·to· Produce·"Design· Principles"·and· Enhance·Solution· Implementation¶ |

Refinement·of·Problems,·Solutions,·Methods,·and·Design·Principles¶

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There are following five characteristics of Design based research as defined by Wang and Hannafin (2005).

First, design based research is pragmatic in a way that it deals with current real world problems like problems associated with classroom leaning by devising instructional interventions from existing learning theories or existing instructional designs as plausible solution of the problem and enact and refine it in the research which further lead to substantial change in practice as well as refinement and elaboration of pre-existing theories and instructional designs.

Second, design based research is grounded in the theory as well as in real world contexts. Theory is both foundation and outcome of design based research.

Third, design-based research is interactive, iterative and flexible. The researchers and practitioners collaborate together to analyse the problem and devise solutions from the existing theories. This ongoing recursive nature of the design process also allows greater flexibility than traditional experimental approaches.

Fourth, design-based research is integrative because it employs both qualitative and quantitative research methods so as to generate adequate amount of evidence that supports underlying theoretical framework of the intervention and also refines the innovation itself in situ.

Fifth, design based research is contextualized because the outcomes are dependent on both the design process as well as the real world context in which the research is conducted.

Design based research design negotiates the problem of effective integration of ICT for student learning with the researchers and practitioners and develops a design of congenial ICT integrated learning environment for enhancing classroom learning opportunities of the students based on existing design principles derived from prior research. Design based research can be used to develop TPACK framework for professional development of teachers working in a particular school setting.

Online professional community or online groups can be used for collaboration among researchers and practitioners to analyse the real world problem under concern. Data based management software like excel or

access can be used to organise and manage the data collected during the research process. Data analysis software like SPSS, or SAS etc. can be used for quantitative data analysis and NVivo or ATLAS-ti for qualitative data analysis. Cloud based software like Google drive and Google docs can be used for sharing of information among the researchers and practitioners in multiple formats.

6.0 Summary

ICT tools generate various learning opportunities for professional development of teachers. Electronic-teaching portfolio can be easily stored, archived and shared without any additional cost. It can be uploaded to any website or as a part of the blog and then can be shared with others. Technology based research is the research that uses technology or ICT tools to conduct various research activities. It helps the researcher since the stage of review of related literature to the stage of writing the research report. Design based research analyses the current real world educational problems and design and develop educational interventions based on the principles derived from prior research by researchers and practitioners in collaboration and then implement and evaluate it for its refinement.

Quadrant-III - (Learn More / Web Resources / Supplementary Materials):

Books, articles, research papers, journals, case studies etc.:

A design-based research approach to improving professional development and teacher Knowledge: the case of the Smithsonian Learning Lab. Retrieved from https://www.citejournal.org/volume-17/issue-3-17/general/a-design-based-research-approach-to-improving-professional-development-and-teacher-knowledge-the-case-of-the-smithsonian-learning-lab

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https://en.wikibooks.org/wiki/ICT_in_Education/The_Uses_of_ICTs_in_Education

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Teachers' professional development for ICT integration: Towards a reciprocal relationship between research and practice. Retrieved from https://www.researchgate.net/publication/276156508_Teachers'_pr ofessional_development_for_ICT_integration_Towards_a_reciprocal_rel ationship_between_research_and_practice

Thakral, P. (2015). Role of ICT in Professional Development. Retrieved from http://ndpublisher.in/admin/issues/LCV6N1m.pdf

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Barrett, K. (2012). Introduction to K-12 e-Portfolios. Retrieved from https://sites.google.com/site/k12eportfolios/home

Hart, J. (2005). Learning in a modern workplace. Retrieved from http://www.c4lpt.co.uk/blog/

http://dbr.coe.uga.edu/explain01.htm

http://edutechwiki.unige.ch/en/Design-based_research

http://unesdoc.unesco.org/images/0019/001936/193658e.pdf

http://www.qrcodescanning.com/technology-based-research.html

https://faculty.wsu.edu/portfolio-example-2/

https://myelearningworld.com/schoology-vs-edmodo-vs-google-classroom-3-education-lms-comparison/

https://oklportfolio.wordpress.com/

https://www.class-central.com/report/mooc-providers-list/

https://www.classcraft.com/blog/features/google-classroom-virtual-classroom-lms/

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https://www.phdstudies.com/article/Five-Top-Thesis-Writing-Tools/

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Glossary:

App: App is an abbreviation for application, usually refers to a software for a specific device or purpose.

Blended Learning: It is also known as hybrid learning which blends face-to-face learning (F2F) with online learning thereby F2F learning is enriched by online learning and vice versa.

Blog: It is a web 2.0 tool which allows the users to post and share their experiences related to anything. Its full form is Weblog and it works like an online diary because it has often diary style text entries.

Blogger: It is a Google app which is used to create blog.

Design Based Research: Design based research analyses the current real world problems and design and develop interventions based on the principles

of existing theories or design principles by researchers and practitioners in collaboration and involves a number of cycles of testing and refinement of interventions in practice. This leads to development of context-specific design principles and intervention framework.

e-teaching portfolio: It is a digital teaching portfolio created by the teacher using web authoring tools or web services like blogger, weebly, wix, prezy etc. and demonstrates the teaching standards and also includes artifacts in different media types that indicate accomplishments of these standards. It involves non-linear web presentation of its pages.

Google drive: It is a secure cloud storage which gives access to files anywhere and file backup for our photos, videos and files. We can share the information with our colleagues and students and also get their feedback.

Google forms: It is a Google app which is used to create the questionnaire and conduct online survey.

ICT: Abbreviation for Information and Communications Technology.

MOOCs Courses: It is an abbreviation for massive open online courses. It is offered through online learning platforms like edX, coursera, future learn etc. to anyone interested in learning, to any number of participants, at a fixed given timeframe in a modular form.

Online courses: The courses which are offered online through online learning platform like MOODLE, EDMODO, Google classroom, Blackboard, edX, coursera etc. are called online courses. It is a built environment for online learning.

Online Learning: It includes learning with the assistance of the internet and a personal computer.

Online Learning environment: A learning environment with no physical location and in which the instructors and students are separated by space.

Online learning platform: It is an online course provider like edX, Coursera, future learn etc.

Online professional Community: An online community, also called an internet community, is a virtual community whose members interact with each other primarily via the internet for discussions on the problems related to the profession.

Personal Learning Network: A Personal Learning Network is a way of describing the group of people that we connect with to learn their ideas, their questions, their reflections, and their references.

Podcast: Pre-recorded audio or video files delivered via RSS feed onto the internet, and which can be played back through a computer or digital players such as iPods, MP3s, etc.

Professional Development: It is the process of improving and increasing capabilities of staff through access to learning opportunities in the workplace, through outside organisation or through observing others' perform the work.

Technology Based Research: Technology based research is the research that uses technology or ICT tools to conduct various research activities since the stage of review of related literature to the stage of writing the research report.

Web 2.0 technology: It is the web technology which allows sharing and collaboration opportunities to users and help them express themselves online.

Quadrant-IV (Multiple Choice Questions)

1. According to Hartz J. (2010) Model, in the context of ICT what is the fifth stage in the continuum of professional development of teachers?

(a) Collaborative Learning

(b) Social Learning

(c) Classroom Learning

(d) Blended Learning

2. What is blended Learning?

(a) It is the learning in digital platform

(b) It is the learning in online learning environment

(c) It enriches face-to-face learning through online learning

(d) e-learning

3. Among the following which application can be used to offer online courses?

(a) Blogs

(b) LMS

(c) Groups

(d) CMS

4. Among the following which technology provides collaborative learning experiences for professional development of teachers?

(a) Web 1.0 technology

(b) Read only technology

(c) Web 2.0 technology

(d) Any web technology

5. What is the example of online professional community?

(a) Facebook

(b) Blog

(c) Wikieducator

(d) Twitter

6. Which page should be placed first in e-teaching portfolio?

(a) Course descriptions

(b) Teaching Philosophy

(c) Sample lesson plans

(d) Teaching Activities

7. Which online software is used for development of e-teaching portfolio?

(a)Wiki

b) Facebook

(c) Twitter

(d) Blogger

8. What is the example of online database for educational research?

(a) LinkedIn

(b) Blogs

(C) Google scholar

(d) Google groups

9. Which software is used for qualitative data analysis?

(a) NVivo

(b) SPSS

(c) SAS

(d) STATA

10. What is the characteristic of design based research?

(a) Controlled conditions

(b) Immediate solution of the problem

(c) Refines the existing theories

(d) Avoids prior research in the related area

Answers:

1. a, 2. C,3. b, 4. c, 5. c, 6. b, 7. d, 8. C, 9. a, 10. c