

E-Pedagogical Skills of Online Instructors: An Exploratory Study

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Abstract

This study was conducted to explore the e-pedagogical skills of Instructors essential for online teaching. Online education is an emerging concept in Pakistan. Online education is a planned learning that normally occurs in a different place from teaching, and as a result it requires special skills for course design, instructions, and special methods of communication through technology. The main objective of the study was to provide a description of those pedagogical skills which were mandatory for online Instructors to teach their courses effectively. A sample of 38 Instructors was purposively selected from the Allama Iqbal Open University, and the Virtual University of Pakistan. These Instructors were asked about their instructional responsibilities, method of teaching, the technology and online resources they used, and their assessment practices of students' learning. Research instrument of the study was a questionnaire having three point Likert scale type questions, and two open-ended questions. The results of both quantitative and qualitative data indicated that teaching online courses is not the same as face-to-face teaching. The Instructor requires a set of e-pedagogical skills to teach online courses. Online Instructors require a special set of e-pedagogical skills to teach online courses.

Keywords: Online distance education, Online teaching, E-pedagogical skills.

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Introduction

We are living in the 21st Century; the technological advancement era, where technology has been permeated in all spheres of life including education as well. Many technologies have been added in teaching learning process to make it simpler and easier. There is a pedagogical shift in the ways how we teach and learn (Kim & Bonk, 2006). Consequently, online distance education is gaining popularity all over the world and quality instruction is in demand (Kennedy, 2015). The role of a faculty member in online education is different from face-to-face (formal) education (Moeller & Reitzes, 2011). Instructors of online courses have to play multiple roles (Huang, 2018). One is teacher as a facilitator, who facilitate online learners in completing their course work and assignments. Online Instructors are responsible for maintaining effective online learning environment and ensure that their instructional material are well designed and packaged, and learners are provided with adequate information management skills (Huang, 2018). They not only require a training to use the hardware and software, but also need to know, the specific teaching methods, in order to teach online courses effectively and successfully (Baran et al., 2011). Therefore, it is important to identify the roles, competencies and pedagogical skills of online Instructors.

Online learning

Online learning has become a widespread method for providing education at both graduate and undergraduate levels since the 1990s and has been growing rapidly. It is getting popularity as it fulfils the needs of learners who are unable to attend the traditional classrooms, e.g. those who live in remote areas, those who are in full time job and work, and those who want to learn independently. There has been an important role played by the technology for the development and expansion of online education (Moon, 2008; Haddad et al, 2014). However, it is not the technology which directly impacts on education but the ways in which teachers and learners interact with it (Moon, 2008; Haddad et al, 2014). Thus there is a pedagogical shift in the ways how we teach and learn. The status of an Instructor in online education is very important, it is different from the status in formal education (Kim & Bonk, 2006, Redmond, 2011). Since there is no face to face interaction between students and Instructors in online courses, therefore, the nature of preparation and designing a course is of worth importance. The online Instructors must have more competencies for online teaching as compared to formal education (Kim & Bonk, 2006; Redmond, 2011). In an online course, there should be a balance of knowledge and interactivity, so that students enjoy learning within the course.

Instructors should carefully plan the learning material according to student's need, and this should be appropriate enough for a student to learn according to his/her pace of learning (Zhu, 2005). Learning environment should be learner-centred, and students should be given such assignments and tasks in which they are required to work

in collaboration with their peers and class fellows (Khurshid, 2020; Zhu, 2005). These activities would develop sense of socialisation and students learn to work within team and organisation (Khurshid, 2020). Instructors should interact with students in such a way that they should not feel, his/her absent from the system (Moeller & Reitzes, 2011). Instructors should act as facilitators who facilitate learning needs of students and provide them assistance to use different technologies to their course work and assignments (Moeller & Reitzes, 2011). Moreover, there is a need to understand how high degrees of motivation and persistency can be maintained for certain learners in online mode of education (Chen & Jang, 2010). Online Instructors need to learn more about techniques to involve learners in online discussion forums, course related study groups and so on.

E-pedagogy

Typically in a teacher-centred classroom, Instructors control the teaching learning environment because they have hold on information (Nayak & Rao, 2002). Contrary to this, now students have access to vast resources of data and information, and they no longer are completely dependent on teachers for knowledge. Due to online courses, learning is becoming more collaborative, contextual and active (Khurshid, 2020; Hendricks, 2012; Jahng, 2012). Educators must first design their curriculum goals and objectives, and then consider how online environment can best achieve the instructional objectives and facilitates learning activities of that curriculum (Simonson, 2015). This requires changes in the pedagogy of instructor and their role as facilitator (Keengwe et al., 2014). To make learning successful, the teachers and learners must take new roles in the teaching-learning relationship, and the instructor must be willing to release control of learning to students (Simonson, 2015; Baran & Correia, 2014).

There are many instructional strategies that can be successfully adapted to facilitate online learning, e.g. discussion boards and forums, Live chat, Zoom, Skype, video lectures, game based learning, Blog writing etc (Haddad, et al. 2014; Yang, 2017; Sharoff, 2019). The Instructors should choose such strategies that are most effective to achieve their educational objectives, and according to students' specific pedagogical needs (Haddad, et al, 2014; Sharoff, 2019; Yang, 2017).

Distributed learning

Distributed learning is a pedagogy that builds on the strengths of various technologies (Matheos & Archer, 2004; Norton & Sprague, 2001). Different technologies used in 'Distributed learning' are Internet, email, Listservs, chat, videoconferencing, video, interactive videos, World Wide Web, CD-ROM, Artificial Intelligence (AI), and Virtual Reality (VR) (ibid). Distributed Learning emerged from research conducted in the science of distributed cognition. According to this concept, intelligence is not the property of

individual minds only, instead it is distributed across minds, persons, and the environment (Norton & Sprague, 2001). Knowledge is socially constructed through collaborative efforts towards common goals (Brown & Herrero, 2010). Through the use of internet, knowledge webs, and virtual communities, students and Instructors can participate in online discussion forums. These discussion forums provide access to peers and experts that have useful skills and answers to their queries. They get involved in discussions, get support for peer tutoring and problem solving techniques (ibid). If an Instructor in online learning environments do not support learner's ability to learn, mentor and guide them, consequently, learners will become frustrated and disillusioned and ultimately drop out of online courses (Park & Choi, 2010).

Assessment

Assessment is a very important element of the learning process because it indicates either the objectives of the course work have achieved or not. According to Castle et al., (2010) and Gaytan and McEwen (2007) a big change can be brought in the assessment of student's learning and achievement, with the development of technology. Using web sites, online tests and quizzes makes testing schedule very flexible (Castle et al., 2010; Gaytan & McEwen, 2007). One can take any test anywhere and at any time. It provides more individualised testing environment and very fast score reporting (DEECD, 2011). One of the advantages of computer adaptive tests is that it takes less time than the traditional paper-pencil tests (ibid). However, there are some problems with online assessment, e.g. internet or connection problems, energy breaks, cost of online assessment software. Technical expertise are required on the part of instructor to create online exams. Nevertheless, benefits of online assessment outweigh the problems. A variety of computer software are available for the purpose e.g. C-Quest, Examiner, Fast Test, MicroCat, easy test maker, exam professor, and question mark etc (Fuentes et al. 2016).

Online Education in Pakistan

The concept of distance learning is not a new phenomenon in Pakistan, in that the Allama Iqbal Open University (AIOU) has been providing distance education since 1974 (Iqbal & Ahmad, 2010). At Allama Iqbal Open University (AIOU), the traditional method of teaching through correspondence and providing guidance through tutors has been supplemented by quality radio and television programmes broadcasted on the state media: Radio Pakistan and PTV World (Iqbal & Ahmad, 2010).

Although the concept of distance learning is not new in Pakistan, what is new, however, is the way in which digital media and ICT are shaping the methodology of delivering distance education by adding efficiency, convenience, interactivity and outreach to learning programmes (Iqbal & Ahmad, 2010; Khalique, 2005; Siddiqui, 2007).

According to the Survey of ICT for Education in India and South Asia (2010), a model for virtual education and e-learning was developed at Allama Iqbal Open University in 1999, when the Open Learning Institute of Virtual Education (OLIVE) was started and a number of courses were conducted via synchronous online meetings and asynchronous e-mail as well as message transfer methods. The first major e-learning project was the launch of an electronic courseware production centre in the Computing Science Department in 2001 (Iqbal & Ahmad, 2010; Survey of ICTs, 2010; Sangi & Ahmed, 2007).

One of the major initiatives of the Government of Pakistan towards promoting e-learning was the establishment of the Virtual University (VU) in 2002. It is a public sector university and was established with the aim of -Education for all and life-long learning. The Virtual University delivers education through Internet and television. Eminent scholars from all over Pakistan have developed the Virtual University courses and their lectures are recorded in professional studios (Khaliq, 2005), with these being accessible to its students on CDs as well (VU, website).

Teaching online is a new concept in Pakistan. It appears from the literature that the faculty, teaching online courses needs to exhibit a special set of e-pedagogical skills. This concept needs to be discovered, as little research work has been done in this regard.

Objectives of study

This research was conducted with these objectives:

- To highlight the need and importance of e-pedagogical skills for the Instructors, teaching online courses.
- To provide a description of those pedagogical skills which are required by the online Instructors to teach their courses effectively.

Research questions

Following research questions were formulated:

1. What e-pedagogical skills do the instructors have who are involved in teaching online courses?
2. What are the views of Instructors about their knowledge of required e-pedagogical skills to teach online courses?

Methodology

To find out what e-pedagogical skills the online Instructors have, an exploratory study was designed. Purposive sampling technique was applied to select the sample for this research. Wherein, only those Instructors who were teaching online courses were selected from Allama Iqbal Open University and Virtual University of Pakistan. In total, there were 38 Instructors on the sample.

Instrument

A questionnaire was utilised as a main tool for the data collection. This questionnaire consisted of 36, three point Likert scale type questions divided into four sections. Section 1, has questions about the online resources the Instructors utilise for their teaching. Section 2, has questions about how Instructors interact with their students during online courses, while the section 3, focuses on the online assessment practices of the Instructors, and section 4, has questions aimed at assessing the interest and responsibilities of the Instructors during online teaching. The questionnaire also had two open-ended questions, one was about instructor's knowledge of e-pedagogical skills and for the second question Instructors were asked to give suggestions for the improvement of online teaching.

Reliability of the Instrument

The internal consistency reliability of the questionnaire was calculated through Cronbach's alpha, which is stated as alpha coefficient of reliability (Cohen et al., 2011). For this purpose, the questionnaire was administered to 20 faculty members, teaching online courses at university level. The value of Cronbach's alpha coefficient for these faculty members' scores was found as 0.81, this indicated that the questionnaire was reliable to use in this study in Pakistani context.

Procedure

Information about the faculty, teaching online courses at the Allama Iqbal Open University, was taken from the university's computer science department. These faculty members belonged to different cities of Pakistan, but data was collected only from those, residing in Rawalpindi and Islamabad cities, it was to make sure to get maximum response on the questionnaire. These were eight (8) in number. Their responses on the questionnaire were obtained through face-to-face meetings at their work place.

The faculty of virtual university was traced through email. Faculty members' email IDs were obtained from the Rawalpindi campus of the Virtual University. Initially the questionnaire was sent to fifty (50) faculty members through email, however, only thirty (30) replied and returned the questionnaire, making 38 Instructors in total, on the sample.

Data Analysis**Quantitative data analysis**

Quantitative data was analysed through descriptive statistics, which involved, calculation of frequency and percentages, to summarize Instructors' responses about their e-pedagogical skills.

Qualitative data analysis

The qualitative data yielded through open-ended questions was analysed thematically. The reliability of qualitative data was checked through inter-coder agreement. For this purpose, first, qualitative data was coded, and then condensed into themes. For checking the accuracy of thematic analysis, an experienced researcher was consulted. This researcher was asked for comments on the ways in which the qualitative data was coded, and themes were generated. Her coding matched well with mine, except for few differences, and yielded an inter-rater agreement of approximately 95%. The inconsistencies were resolved through discussion.

Results of the Quantitative data

To find out the e-pedagogical skills of sample participants, a questionnaire was used (detailed above), where they responded to 3 point Likert scale type questions. As was mentioned earlier, the questionnaire was divided into four sections, therefore, section wise analysis is presented below.

Table 1 presents the scores of the participants obtained for the section about utilization of online resources during their teaching of online courses. These online resources include online tools e.g. web, group discussion tools, online chat, email, online books and journals, and provision of course material in the form of slides and notes etc. Total score of this section is 15 and the mid-point is 7.5. Participants who scored more than 7.5, often use online resources into their teaching. Only 3 participant got highest score 15, which indicates that they always use online resources, majority (i.e. 10) of the participants got 12 score, and 9 got 14 score, which indicates that they are the frequent users, and 2 participants use for their teaching very rarely online resources as indicated from their score, 7.0.

Table 1

Online resources used by Instructors (n=38)

Score	Number of teachers	Percentage
7.0	2	5.3%
10.0	4	10.5%
11.0	3	7.9%
12.0	10	26.3%
13.0	7	18.4%
14.0	9	23.7%
15.0	3	7.9%

The results related to how Instructors interact online with their students during the course work, are presented in Table 2. The online interaction modes and tools included online chats, e-mail, online forums, and teleconferencing etc. The highest score

in this section is 18 and mid-point is 9. The highest score among the participant Instructors was 16, which was scored only by 9 participants. This shows that only a few participants frequently use different tools for online interaction with their students. The majority, 13 Instructors, scored 13 points, indicating that they often interact with their students. Only two Instructors scored 8 and 10 points, which indicates that they rarely interact online, with their students during the course work.

Table 2

Online Interaction modes used by the Instructors for their students (n=38)

Score	Number of teachers	Percentage
8.0	1	2.6%
10.0	1	2.6%
11.0	2	5.3%
12.0	5	13.2%
13.0	13	34.2%
14.0	4	10.5%
15.0	3	7.9%
16.0	9	23.7%

The responses of Instructors about their assessment practices during online courses, are presented in Table 3. Instructors were asked how they assess their students e.g. during or after the course, through assignments, reports, and online discussions, give objective or subjective type tests, through proctored monitor exams, or use special software for assessment. The highest score in this section is 36 and mid-point is 18. All the Instructors, except for one got score 23 and above. Only four Instructors got 36; the highest score, which is 10.5%, while 11 Instructors scored 28, which makes 28.9% of total percentage. This indicate that almost all the Instructors, with exception of only one, utilise multiple modes of assessment for their students during online teaching.

Table 3

Online assessment practices utilised by the Instructors (n=38)

Score	Number of Instructors	Percentage
17.0	1	2.6%
23.0	1	2.6%
25	4	10.5%
26	1	2.6%
27	4	10.5%
28	11	28.9%
29	5	13.2%
34	2	5.3%
35	5	13.2%
36	4	10.5%

Section four of the questionnaire was about the interest and sense of responsibilities of the online Instructors. Table 4 shows the results of this section. Participants were asked about: do they ensure the accessibility of online learning material to students, do they take care of individual student's needs, their choice of different teaching methods, and utilisation of different instructional technologies e.g. ETV, virtual reality (VR), teleconferencing, CDs etc., into their teaching. The highest score of this section is 48 and mid-point is 24. All the participants got score 25 and above, where 10 i.e. 26% got 36, indicate that majority of them are responsible and teach with interest in their online courses.

Table 4

Instructors' interest and awareness of their responsibilities towards online teaching (n=38)

Score	Number of Teachers	Percentage
25	1	2.6%
27	1	2.6%
29	4	10.5%
30	2	5.3%
31	2	5.3%
32	4	10.5%
33	2	5.3%
34	7	18.4%
35	5	13.2%
36	10	26.3%

Results of the Qualitative data

There were two open-ended questions in the questionnaire, in one question the participants of the research were asked to write about the skills required for online teaching, and the second question was about their suggestions for the improvement of online teaching. For the analysis, first, qualitative data was coded, and then condensed into themes. These themes were; 'online teaching skills', 'IT Skills' and 'use of online assessment tools'. Participants' responses are discussed in the following text.

According to the participants' responses, the teaching skills required by online Instructors to teach effectively online courses were, setting appropriate objectives for the course, designing the course content, assignments and assessment activities, and choosing appropriate instructional technology accordingly. An online Instructor needs to be skillful and well trained in the field of IT, so that he/she can communicate his/her ideas effectively to the students virtually. Respondent further stated,

“Online Instructors must have an experience of work in distance education because this mode of education is very similar to online education.”

Online Instructors must have the abilities of handling different software and hardware, and should also be well versed with the installation, maintenance, and modification into them. Online Instructors must have subject knowledge, and knowledge about e-learning resources. They must know how to counter plagiarism and cheating in assignments. They should encourage learning through group interaction through utilizing discussion boards and chat rooms for the purpose. They must interact more and more with students, so that they know the learning styles of learners, and adopt teaching strategies accordingly. They should develop e-portfolios for the maintenance of students and their own teaching records. Instructors should be knowledgeable enough about the theories and philosophies of e-learning. Regarding the use of online assessment tools, respondents wrote,

“Instructors must have knowledge about assessment tools available on the websites and know how to download them and use them properly according to the specified rules and instructions provided.”

Discussion

Instructors occupy very important position in online education. Role and responsibilities of online Instructors are different from formal face-to-face education (Ally, 2019; Huang, 2018). Results of this study indicated that online Instructors must have more competencies for online teaching as compared to formal education. Most of the online Instructors use online resources like web, e-mail, online books and journals, group discussion tools, and online chat, to support their teaching. These Instructors use online resources for different purposes. Some Instructors use e-mail to provide PowerPoint slides, course materials, while other have developed their own websites from where the students can download their course material. Ally (2019) and Bezuidenhout (2018), have developed a competency profile for online Instructors, which they must possess in order to teach effectively in online learning environment.

Online Instructors have more than one option of interaction with the learners; asynchronous and synchronous (Yamagata-Lynch, 2014). Asynchronous means of interactions include bulletin boards, email, conference boards, wiki, blogs, and online forums. Asynchronous option does not require the learner or Instructor to be online at the same time, and the learner can leave his/her query or question on these boards or email it to Instructor and can get its answer after a while (Hastie et al., 2010; Simonson et al., 2012). Synchronous option of interactions are chat, videoconferencing, and voice chat. These are the live modes of online interaction, one can get immediate feedback through them because it requires the Instructor and student to be online at the same time (Hastie et al., 2010). As identified by majority of the Instructors, for some students access to these means was an issue, because of internet speed problem. As, both synchronous and asynchronous modes have their own benefits and limitations, Higley (2013) and Er et al. (2010) suggested that Instructors should utilise both modes in order to cater individual need of students in online learning environment.

Just like interaction, there are many options available for the online Instructors to assess their students' learning. Most of the Instructors used three types of assessment for their students' learning. They assess the prior knowledge about the course, they assess learning during and after the course, majority of the online Instructors assess their students' learning through assignments, reports, online quizzes, and objective type online tests. Moreover, exams were conducted in a check and balance environment, in different campuses of universities. Use of different types of assessment is highly recommended for the students' learning and progress in online learning environment (DEECD, 2011). Majority of the participants mentioned the issue that full versions of assessment software were not available to them. Only few features of the software were available which did not fulfill their requirement of assessment. Online assessment software mentioned by the participants were, 'Question mark', 'C-Quest', 'Micro Cat' 'WEBCT', 'TLM 2.1', 'TESTLINC', 'Black Board' and 'Moodle' etc.

The responsibilities of online Instructors highlighted by the participants include, they needed to make sure that the learning material must be available to the students. They need to take copyrights of the lecture CDs and make efforts to stop plagiarism. It is their responsibility to choose the appropriate teaching methods and instructional technology along with assessment stratagem. A majority of online Instructors prefer brainstorming and discovery teaching methods. It was found from the data of this research that the Instructors were very sensitive about students' learning and course results, they asked their students to search the information from internet relevant to their course work. For this purpose they guide them to read online books, journals and provide them with different web links, which helped them in understanding a problem and get the solution. Instructors also arranged seminars and workshops for their students, and assigned some practical work as well. Taylor-Massey (2015), highlighted different roles of online Instructor, and advised that by adopting these roles, they can guarantee higher quality online learning experience for their students.

Conclusion

Teaching online is an emerging concept in Pakistan. Very less research has been conducted on this concept in the Pakistani context. This study was an effort to find out some aspects of online teaching. The main aim of the study was to provide a description of those pedagogical skills which were required by the online Instructors to teach their courses effectively. Instructors were asked about their instructional responsibilities, method of teaching, the technology and online resources they used, and their assessment practices of students' learning. The results showed that online Instructors required a specific set of teaching skills, often known as e-pedagogical skills. The responsibilities of online Instructors were different from the teachers teaching in face-to-face or traditional

teaching learning environment. They need to use a mix of teaching methodologies along with instructional technologies. They need to use many online tools and resources to interact with their distant students. The assessment practices are totally different due to computer generated test and computer assisted animation. They have to take care of the plagiarism in the course assignments. They also have to take care of technological skills of their students, and provide them with complete and comprehensive guidance, which may not be related with their course requirements but have to perform such duties. Keeping in view the rapid growth of online education, it is important that higher education institution should provide quality online programs. Since teachers occupy a special and main place in any education system, their pedagogical skills and practices are considered very important. This study provides a glimpse of the pedagogical and technological skills for online Instructors. Focusing on these e-pedagogical skills, it will be possible for us to provide quality online learning environment to the learners living in the 21st century.

Recommendations

The research revealed that teaching online courses effectively, the Instructors should have specific pedagogical skills. The awareness about these skills is essential for the universities as well as Instructors, who are engaged in online education. To facilitate effective online teaching and learning, the Instructors should be well versed with the use of different technological tools. Furthermore, for the best use of these technological tools, the Instructors should train their students too, so that they must be comfortable with online teaching learning environment. In order to create awareness and enhance the e-pedagogical skills, the universities should make necessary arrangements to provide their faculty members with the required professional development training opportunities. Since the assessment is the most important part of an education system, therefore, Instructors should be provided full access to online assessment tools, from their respective Universities. This will help them to carry out assessment activities for their online courses successfully. Further research is also recommended for in-depth analysis of problems and challenges associated with online teaching and learning, faced by teachers, administrators and students.

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