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Comparative Effectiveness of Teaching Modes in Distance Education: Evidences from Chinese Open University

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Abstract

This study evaluates comparative effectiveness of teaching modes i.e. video programmes, tutorial, textbook, and online web being used in Distance Education system of Chinese Open University, Beijing. Special emphasis has been given to video programmes. Population of the study was graduate students enrolled in different courses having online and video programmes along with tutorial and textbooks at the Beijing Study Centre of the University. A sample size of 300 including both male and female students was selected, and data were collected through a self-administered questionnaire. Besides teaching modes, students' demographics as well as the reasons for studying distance education were variables of the study. The findings showed that online teaching is popular among students of distance education system. It was also found that video programmes were also considered a relied source, and deemed as helpful and relevant in overcoming language-related problems, understanding textbooks, motivating for future studies. The major reasons for opting distance education system was found to be customization of the learning materials, and learners' pace and ease. Although technology has brought changes in the delivery and reception of contents of distance education system but the study shows that books and tutorials (teachers) have still not lost their worth.

Keywords: distance education, effectiveness, teaching modes, online, video, tutorials, textbooks.

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Introduction

The need of Distance Education (DE) arises when learning between teacher and student does not take place physically in a traditional classroom. There are many reasons such as commitment with job, home chores, age, paucity of formal educational institutions, poverty, remoteness and others social-economic factors inhibiting people to go to regular educational institutions (Bollag, & Overland, 2001). DE provides equal opportunity of learning to all. The fundamental difference between Formal and Open Universities is that for formal university, students go to the University for learning, whereas in the case of Distance University, the university itself goes to the students for learning. DE enables students to learn on their own pace, time and convenience. It saves time and money as students do not mostly require travelling to the university. Comparatively, the system of DE is cheaper as compared to the formal education. Due to the physical separation of learners and teachers, distance education engages interactive as well as proactive teaching methods through print and electronic devices (Moore, 2005).

History of Distance Education (DE) is about 150 years old. Quite a good number of Open Universities were set up in different countries after the British Open University in 1960s (Solomon, 2015). Allama Iqbal Open University (AIOU) is the second oldest Open University in the world and the first Distance learning institution in Asia. It was established in 1973 (AIOU Year Book 2010). At present there are Open Universities or Distance Education institutions in almost all the countries. Initially educationists were cortical about the distance education and viewed that distance education is unrealistic and not equal to the formal education. Now they are recognizing that modern and busy lives do not allow everyone to have the luxury of expensive and time taking tight scheduled based traditional university education (Solomon, 2015). Moreover, research studies conducted during the last decades indicate that students learn equally meaningful and authentic from technological methods (Moore, 2005).

Initially, DE used correspondence (still some distance institutions use it) by sending learning material to the far-flung students and students' work back to teachers. The advancement in telecommunications technologies has brought significant changes in DE and made the acquisition of knowledge and skills possible through blended modes instruction, using technologies and other forms of learning (Solomon, 2015). DE is now using satellite making education accessible and understandable to the students. Technology made it easy now to connect far flung students through video

conferencing/Skype, online teaching, and streaming video or live chat for meaningful and understandable learning (Solomon, 2015).

Distance educational institutions all over the world are using two paradigms for delivery of education; i.e.' 'synchronous learning' and 'asynchronous learning' (Lever-Duffy, 2007). Synchronous learning mode is like a traditional classroom teaching where all participants are "present" at the same time although the students are residing remotely. This mode uses technology; for example, Web conferencing, Skype, videoconferencing, educational television, instructional television, direct-broadcast satellite, internet radio, live streaming, telephone, and web-based VoIP (Lever-Duffy, 2007). In the asynchronous learning, students learn course material on their own pace through mail correspondence—one of the oldest form of delivery modes in the distance education. Asynchronous delivery mode also use technology, such as message board forums, e-mail, video and audio recordings, print materials, voicemail (Lever-Duffy, 2007). Many distances education Universities these days use blended modes or hybrid learning by combing Synchronous and Asynchronous learning. Research studies indicate that well-managed DE programmes produce learning outcomes equal to those of face-to-face instruction (Willis, 2003). Interactive computer-based programmes in DE provide students with a far greater interaction than is possible in over-crowded classrooms (Willis, 2003). The present study has been designed to investigate comparative effectiveness of tutorials, text books video materials produced by Chinese Open University for the students of different courses and online materials delivered to the students by the University. Tutorials and textbooks are the conventional contents used in formal as well as distance education system. However, the recent integration of online mode is supposed to empower learners more than other modes of teaching used in distance education. The study puts more emphasis on video contents (mode) as it is an integral part of conventional content delivery system in the form of both broadcast non-broadcast content, and the recently more technology-based online mode.

Landscape of Distance Education in China

The first Chinese Open University, "Television University" was established in 1979. Now there are about 50 Open Universities in different provinces of China. DE in China has always been a top priority of the successive governments. DE in China has always been woven with technology. Educational technology in China revolves around three eras (Ding, 2010). Zhang, Niu and Jiang (2002) point out, "China DE evolved

through three stages: correspondence-based education; broadcasting/ television-based education since the 1980s; and advanced distance learning based on information and Internet technologies since the 1990s" (p. 5).

Correspondence education was based on printed books using postal communication supported by fortnightly tutorials along with assignment and final examinations. It happened first in Rennin University in 1951. The Broadcast based DE started by the City TV Universities 1960 at Beijing, Shanghai and other major cities used radio and television live broadcast as instructional medium.

Video Programmes and Evaluation Strategy

Due to its distinct delivery ability and presentational power, video programmes make its way deep into DE as an important mode for teaching. Researchers, educationists, producers and media practitioners think how effectively develop educational TV programmes to achieve the best possible learning objective in harmony with the needs of students. According to Bates (2005) video lesson can easily demonstrate a situation such as outsized phenomena or where the situation is multipart and where the experimental behavior is not easily reduced to a single dimension, which cannot otherwise be explained in normal way. Similarly, video can show movement batter than text, substitute for field visit, model/sketch/drawing, adaptation, attitude change or where there is a need to show three dimensional phenomena (Bates, 2005). Video has the potential to unite a mixture of representational forms. Where average teacher and conventional educational institutions cannot perform, video can do better. Research studies indicate that under certain conditions video can enhance social desirable behaviour and cognitive learning (NIMH, 2002; Lochte, 2001; Adler, 2006).Bate (2005) explains that learning through video can be presented in many ways such as verbally, numerically, physically, conceptually, and symbolically. Thus the "experience of 'heat' can be represented by word ('it is hot'), by number (110 F), physically by touch (feeling the heat), by concept ('form of energy arising from molecules of bodies'), or symbolically (a man dragging himself through the desert). Each way of 'knowing' heat is different" (Bate, 2009). Learning through video can explain ambiguity, summarize, reinforce, motivate, encourage, change behavior, and present unreliable facts and events (Hizal, 1983). Instruction through video is more successful if integrated with the assessment and other modes of learning and attract students at a larger scale (Leem, Lim, 2007; Siraj, 2003).

Video is proved to be effective in distance education by bringing academic material to students in a more direct and personal way as compared to any other teaching mode and gives a sense of association to students who are widely scattered. Video brings the best teachers close to the students and produces better results if integrated with print and other source of information (Siraj, 2003). A well thought out video programme can maintain interest, stimulates learning, and affects emotions and attitudes. This gives television an enormous potentiality for motivating isolated students in distance learning (Siraj, 2003; Hornik, 1981). Egan (1991) argues that since video appeals to the eye and ear, therefore, a much wider range of subjects can be used. Roshier (1969) explains that video can affect viewer's attitude when dealing with direct personal experience and Nunnally (1961) views, "The same is true of our attitudes to mental illness".

To make the video programmes effective and bring it to the students' social and psychological need requires cognitive and deep thought process. Scholars agreed video programmes will be effectively produced if specific characteristics of students like their demography, liking and disliking, socio-economic values, and their pride and prejudice are considered. In this context, Wen (1977) identifies 'Formative' and 'Summative' evaluation. The first is done during the development of the video programme to identify students' learning needs, readiness, learning problems and about demographic characteristics. Summative evaluation is done after the programme is produced and its aim is for future programmes.

Early educational video programmes were meant to enhance students' scholastic ability but ignored the key element students' attitudes towards the medium (Schramm, Lyle & Parker, 1961; Himmelweit, Oppenheim, 1958; Furu, 1962; Campbell, 1962). There are several social and psychological factors that influence students' responses to video learning such as social status, aptitude, gender, personality traits, and learning mode (Poole, 1998). There is a general tendency that video affects attitude of a person in an unobtrusive state of affairs. Such as "our images of crime, for example, very much reflect social reality rather than what we see of it via the media", (Roshier, 1969). Nunnally (1961) argue that that "the same is true of our attitudes to mental illness." Kemelfield (1972) observes that "children living in high-density immigrant areas became far less certain of their pro-Pakistani feelings after viewing the programme 'Our neighbour', which had the unintended effect of emphasizing differences rather than extolling uniqueness".

There is a repeated need to evaluate the educational video programmes for effectiveness. Educational experts producing video programmes must know the innovative approaches blinded with technology and developing a

video on students social and psychological need gratification. Bates, et al (1981) in this regard observe that "analysing usefulness of video for learning through experimental research takes the students completely outside from the real learning context". Dissimilar to Bates, Parlett & Hamilton (1976) adopted, "illuminative evaluation" technique that aims at knowing the actuality in learning progression. "Illuminative evaluation" focuses on the natural environment using qualitative and observational methods. Lasher (1975) developed a three prongs strategy for evaluating educational videos. The first strategy is about the producer, title, presentation, format, length, budget, and the programme production year. This second evaluation strategy is to identify programme content and objective, characteristics of the audience, skills used for presenting the key concepts. The third strategy is about the evaluation itself, (Edward &Lasher, 1975).

Use of Web-based and Video in Chinese DE

Presently, China DE is majorly online based and despite many factors, poverty, remoteness, Web-based education is on the rise (Motlik, 2008). Tsinghua University in 1998 first started the online education. The online education in China is integrated with computer network, satellite TV and telecommunications technology which impart teaching-learning in interactive mode (Ding, 2010; Chen, Ding, Yuan, Xu & Cai, 2008). The Web-based education methods of teaching and learning has moved away from "teacher-centred instruction" to a more "learner-centred style" (Zhang, Niu & Jiang, 2002). Now students enjoy more leaning with greater self-sufficiency through the web-based education, while teacher's role has become significantly as more facilitators (Zhang et al., 2002).

Nevertheless, Zhang (2002) observes management problems in the support centres in organizing online learning. Zhang (2002) proposes "good relationship between the partner institutions to ensure effective learning and student support" (p. 13). Lack of training to equip teacher for online teacher has also been a problem in the Chinese DE. Zhang (2002) points out that without proper training, "it is hard to expect teachers to produce top quality online learning materials and provide top quality learning support to students" (p. 13). This problem raises the issues of credibility and quality concerns about Chinese online education generally, (Zhang, 2002).

Methodology

The researchers used survey research method in the present study and data were collected through a self-administered structured questionnaire.

The target population of the study was all graduate students of Chinese Open University (COU) studying courses for which video programmes were developed. The questionnaire was distributed with the help of designated tutors of Chinese Open University to the specified graduate students at study centres in Beijing and its suburbs. Using convenient sampling technique, 300 questionnaires were distributed among the target students, where 161 questionnaires were received back. Of them 14 were rejected being casually filled in. Thus 147 questionnaires were selected for analysis. However, among these filled in questionnaires all questionnaire items were not responded equally, there were some missing values too. Hence, the number of responses to different items given in the following tables is not the same.

The questionnaire was developed with the help a Chinese a professor working in the Chinese Open University at Beijing. The main objective of this research was to evaluate the comparative effectiveness of teaching modes i.e. video programmes, tutorial, textbook, and online web being used in Distance Education system of the Chinese Open University, Beijing. The questionnaire was mainly focused on questions items relating effectiveness of all the teaching modes, especially that of video programmes, such as helpfulness, relevancy, reliance, attractiveness of the video programmes. Besides, number of programmes watched; video programmes as teaching mode comparison with other teaching modes, such as tutorial, textbook, online web; reasons and number of years studying in distance education; Students scholastic achievement; and demographic and psychographic variables were part of the questionnaire
After thoroughly thrashing out the related concepts and their operationalization, 40 question items were developed for the questionnaire keeping in view the level of education and understandability of the respondents. Initially the questionnaire was developed in English and it was then translated into Chinese language with the help of a Chinese professor. The questionnaire was pretested on 15 respondents of the same population and amended in the light of the feedback.

Cronbach's alpha half for split-half reliability test was run to check the internal reliability for the major constructs' items. The score of reliability was above .80 for all the test items. Descriptive statistics were used to answer to questions through the help of SPSS version 21.

Results

Table 1 shows characteristics of students studying in Chinese Open University (COU). As evident from the table, female (57%) outnumber

male students (31%). Majority students (44 %) spent more than one year studying in COU.The main reason for studying in COU is easiness education and non-interruption in job. They felt comfortable studying in COU. Moreover, they also indicated that they study in COU because they could not secure admission in some formal University. Students pointed out that management of time is generally a problem while studying in COU. For female students, time management for study and work simultaneously is critical. Some of the students also pointed out that studying at Open University was boring and they had the feeling of isolation. Majority of the students, both male and female, were studying Advertising (28%) and Management Sciences (21%). However, while comparing male and female, majority male students were studying Management Sciences followed by Advertising, and Computer. Whereas, female majorly students were studying advertising followed by Industrial Commerce, Management Sciences and others.

Table 1

Characteristics of Sample and reasons for studying in COU

		Freq. & %	**Male**	**Female**
Gender		147 (100 %)	48 (32.7%)	99 (67.3%)
Period spent in COU	Less than year	34 (23.1)	19 (12.9)	15 (10.2)
	One Year	49 (33.3)	8 (5.4)	41 (27.9)
	More	64 (43.5)	21 (14.2)	43 (29.3)
Reasons for studying in COU	Cannot leave job	56 (38.1%)	18(12.2%)	38(25.9%)
	Domestic Work	9 (6.1)	2 (1.4)	7 (6.9)
	Easy study	66 (44.89)	21 (14.3)	45 (30.6)
	Could not get admission	16 (10.9)	7 (4.8)	9 (6.1)
Limitation while studying in COU	Time constraint	105(71.8%)	5(17.0%)	80(54.4%)
	Study is boring	24 (16.3)	15 (10.2)	9 (6.1)
	Studying in isolation	18 (12.2)	8 (5.4)	10 (6.8)
Students Majors	Industrial commerce	16 (10.8)	1 (0.7)	15 (10.20)
	Management	31 (21.0)	17 (11.6)	14 (9.5)
	Accounting	12 (8.1)	1 (0.7)	11 (7.4)
	Law	17 (11.6)	5 (3.4)	12 (8.1)
	Advertising	41 (27.9)	11 (7.5)	30 (20.4)
	Computer	17 (11.6)	11 (7.5)	6 (4.0)
	Others	13 (8.8)	2 (1.4)	15 (10.2)

Responding to a question regarding the most preferred mode of teaching for students' learning 42 per cent preferred online mode where as 24 % students liked video programmes for learning. Only 18 % and 17% students viewed text books and tutorials as their preferred mode of leaning respectively. Female students as compared to male students preferred more online mode for learning followed by video, tutorials and textbook.

Table 2

Gender-wise preference for teaching modes

	Teaching Modes			
Gender	Video	Textbook	Tutorial	online teaching
Male	14 (9.5%)	10 (6.8%)	08 (5.5%)	16(10.9%)
Female	21(14.3%)	16(10.9%)	17(11.5%)	45(30.6%)
Total	35 (23.8%)	26 (17.7%)	25(17.0%)	61(41.5%)

As discussed above the present study focused more on video content as a mode of learning. As evident from table 3 given below, a very clear majority of the students perceived the video programmes as helpful in examination, assignments, overcoming language barrier, understanding difficult concepts given in textbooks, and motivating for study.

Table 3

Perceived helpfulness of the video programme for study

Statements	Strongly Disagree	Disagree	Somewhat	Agree	Strongly Agree
Video programmes are helpful in examination.	2 (1.4%)	4 (2.7%)	38 (25.9%)	77 (52.4%)	26 (17.7%)
Video programmes helpful in the Assignment.	2 (1.4%)	5 (3.4%)	38 (25.9%)	72 (49 %)	30 (20.4%)
Video programmes helpful in overcoming language barrier.	2 (1.4%)	7 (4.8%)	48 (32.7%)	60 (40.8%)	30 (20.4%)
Video programmes helpful in understanding difficult concepts in the textbook.	3 (2.0%)	3 (2.0%)	28 (19.0%)	75 (51.0%)	38 (26.0%)
Video programmes helpful to motivate in studies.	3 (2.0%)	2 (1.4%)	32 (21.8%)	72 (49.0%)	38 (26.0%)

Table 4 given below reveals that, 59%, and 60%, students perceived the video programmes as relevant to the course contents and concepts respectively, while 57% regarding viewed them as supplementing the textbook materials. Similarly, 44% students were of the view that pictures/ graphs, and scenes given in the videos are relevant to the respective courses. Majority (70%) of the students opined that examples given in the videos were relevant to the course content. These figures show the relevancy of the video contents to the course outlines.

Table 4

Perceived Relevancy of the video programme for study

Statements	Rarely	To some extent	Greatly	Very Greatly
Video programmes are relevant to the course content.	15 (10.2%)	45 (30.6%)	57 (38.8%)	30 (20.4%)
Video programmes relevantly cover major concepts.	12 (8.2%)	47 (32.0%)	56 (38.0%)	32 (21.8%)
Video programmes supplement the textbooks.	14 (9.5%)	49 (33.3%)	60 (40.8%)	24 (16.3%)
Pictures/graphs/scenes in videos are relevant to course content.	10 (6.8%)	55 (37.4%)	53 (23.89%)	29 (19.7%)
Examples in video are relevant to course content.	5(3.4%)	39 (26.5%)	70 (47.6%)	33 (22.4%)

Table 5 indicates that 39% and 37% students relied on video programmes for understanding course contents "greatly/ very greatly" and "to some extent" respectively.

Similarly, 31 % and 36% were relying on the video materials for exam. preparation; 32% and 35% students were using the video content for assignments' writing "greatly/ very greatly" and "to some extent" in that order, while 39 % and 36 % of the students were relying "greatly/ very greatly", and "to some extent" for discussion with tutors. Thirty-seven percent and 22.4 % students relied "greatly/ very greatly and "to some extent" respectively on video materials for discussion with class fellows.

Table 5

Perceived reliance of students on video content

Statements	Not at all	Rarely	To some extent	Greatly	Very Greatly
Rely on the video programmes for course understanding.	9 (6.1%)	26 (17.7%)	54 (36.7%)	43 (29.2%)	15 (10.2%)
Rely on the video programmes for examination preparation.	6 (4.0%)	28 (19.0%)	53 (36.0%)	41 (27.9%)	19 (12.9%)
Rely on the video programmes for writing assignments.	7 (4.7 %)	26 (17.7%)	52 (35.4%)	44 (29.9%)	18 (12.2%)
Rely on the video programmes for discussing with tutor	3 (2.0%)	34 (23.1%)	53 (36.0%)	48 (32.7%)	9 (6.1%)
Rely on the video programmes for discussing with your class fellows	15 (10.2%)	44 (29.9%)	55 (37.4%)	24 (16.3%)	9 (6.1%)

Discussion

Change in communication technology has changed the world overnight and dramatically. Postmodern society engages individuals in multi-tasking and getting little time to do many things in the 24-hour day. This also affects the educational attainment of individual from traditional educational institutions which requires presence of individual mandatorily. This condition inhabits people to do other tasks which now feel unconventional in the postmodernist times. This phenomenon has increased the importance of Distance Education (DE) many folds in all over the world. DE institutions are now using communication technology heavily so as to make education available conveniently and meaningfully to everyone. The inherent philosophy of DE is that it is flexible, and enables students to learn on their own pace, time and convenience. It saves time and money as students do not mostly require travelling to the University. Due to the physical separateness of learners and teachers, distance education engages interactive as well as proactive teaching methods.

The question of compatibility of Distance Education with Traditional Education is a serious concern of Distance Education's experts who are consistently thinking to adopt ways and means to make the learning more student-centred. Chinese are experts in Distance Education have adopted 'Synchronous learning mode'. It is like a traditional classroom teaching although the students are residing remotely.This mode uses technology; for example, Web conferencing, Skype, videoconferencing, educational television, instructional television,direct-broadcast satellite, internet radio, live streaming, telephone, and web-based VoIP (Lever-Duffy, 2007). Many distances education Universities are now using blended modes or hybrid learning by combing Synchronous and Asynchronous learning. Research studies indicate that well-managed DE programmes produce learning outcomes equal to those of face-to-face instruction (Willis, 2003). Interactive computer-based programmes in DE provide students with a far greater interaction than is possible in over-crowded classrooms (Willis, 2003).

A well thought out video programme can maintain interest, stimulates learning, and affects emotions and attitudes. This gives video programme an enormous potentiality for motivating isolated students in distance learning (Siraj, 2003; Hornik, 1981). Nevertheless, there is a repeated need to evaluate the educational video for effective learning. Educational experts producing video programmes must know the innovative approaches blinded with technology and students social and psychological need gratification. Parlett and Hamilton (1976) adopted "illuminative evaluation" technique aims at knowing the actuality in learning progression. "Illuminative evaluation" focuses on the natural environment using qualitative and observational methods. Lasher (1975) developed a three prongs strategy for evaluating educational videos. The first strategy is about the producer, title, presentation, format, length, budget, and the programme production year. This second evaluation strategy is to identify programme content and objective, characteristics of the audience, skills used for presenting the key concepts. The third strategy is about the evaluation itself, (Lasher, 1975). Although, the educational video programmes of the Chinese Open University are good, attractive and need base, yet they need to use more summative evaluation of their educational video programmes. The matter of fact is that students of Chinese Distance Education give least priority to educational videos and even textbook. They prefer online teaching mode more as compared to rest of video programmes, tutorials and textbooks. As evident from results of the study, online mode is replacing rest of the teaching modes. The main thing is students' autonomy and ease. The online learning empowers the students.

Although the new communication technology has brought changes in content delivery and reception, and learners due to their autonomy, and ease in customization of the learning modes and materials prefer online mode but tutorials and books are still significant in distance education system. It has also been found that those content, especially video materials, which are more relevant to the course outlines/ concepts; they are relied more by the learners for understanding the concepts, preparation of examination and writing course assignments.

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