

Study on Digital Technology Mediated Learning among Students of Open and Distance Education

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Abstract: Digital technology is the key component of educational upliftment in the scenario of rapidly galloping word. The quality and standard of education system can be enhanced to an extent by integration of digitally mediated teaching and learning especially in countries like India. Hence The incorporation of latest digital and web technology cannot be neglected in Open and Distance Education. The study explored the level of utilisation of digital educational tools and resources among Open and Distance Learning students. The study conducted among 168 post graduate and undergraduate Open and Distance Learning students taken from five universities. The tool used for the study is the Utilization of Digital Educational Tools and Resources developed by the researcher which have 25 questions from five dimensions i.e. Interactive Resources, Digital Library Resources, Multimedia Archives, M-Learning and Open Access Resources. It is four Point-Scale having the score 3, 2, 1, and 0 for the options 'Always', 'Frequently', 'Rarely' and 'Not at all' respectively. The statistical techniques used for the study Mean, Standard Deviation and t-test. The result showed there is a moderate level utilization of digital educational tools and resources among post graduate Open and Distance Learning students while it is below average among undergraduate Open and Distance Learning students. The result also showed that there is significant difference in the utilization of digital educational tools and resources among Open and Distance Learning students based on gender, type of course and stream of subject. It is also found the significant difference among under graduate Open and Distance Learning students based on gender and there is significant difference among postgraduate Open and Distance Learning students based on stream of subject. The study advocates needed policy implementation in Open and Distance Education to enhance the quality concerns.

Keywords: Digital learning, Digital educational tools and resources, synchronous and asynchronous educational web tools and Open and Distance Learners.

1. INTRODUCTION

The advent and development of digital technology brought the world in to a fascinating a global arena without any boundaries. The galloping trends of digital technology penetrated to all facets of human life including the educational processes. The spread of web technology reshaped and modified the educational perspectives of teaching and learning [1]. The clashes between 'digital immigrants' and 'digital natives' in educational scenario necessitated new sophistication of technology mediated teaching learning from nursery level to higher education [2]. The integration of web 2.0 technological educational resources redefined the role of teacher and student in teaching and learning process as it increases students learning engagement[3].

The advent of virtual technology and its adaptation in educational practices brought a drastic change in conception of digitalised teaching and learning processes [4][5]. The online interactive and collaborative platforms for educational discussions are powerful tools to enhance the quality of education system specially to address the issues of higher education. The prime crisis that is plagued by Indian education system is the dismal state of quality that is highly

engrossed not only in procedural terms but also concerned the outcome of education. The integration of modern digital technology mitigates the issues regarding the quality in teaching to extent any students can access to many teaching and learning platforms designed by prominent national and transnational intuitions and agencies. The modern trend in digital learning scenario are virtual technology mediated learning, teaching and learning on synchronous collaborative platforms, access to millions of asynchronous podcasted audio and video resources, online interactive forums, educational social media platforms, open access digital resources such as e-journals, e-books and e-libraries and M- Learning etc. [6-8]

All properties of digital technology greatly augment the quality of education in both modes of regular and open and distance learning in terms of process and product. The policy framework on education in India highly demand the effective orchestration of digital technology to implement in education especially in higher education as India is a developing country cannot neglect it for fastening its growth of knowledge as economy. The students from Open and Distance mode of learning is highly encouraged to boost their access to digital learning resources as there is a severe paucity in classroom exposure which is one of prime criteria to assess the quality concern of education.

Rational for the Study:

Open and distance learning is strong supplement to backbone of every education system as it closes the educational gap emerged due to various reasons. The quality and functionality concerns of Open and Distance mode of education has been debating and frequently juxtaposed with the full time and regular courses. The educational bodies and policy frame workers greatly stress to make the standard and status of Open and Distance mode of education equal to regular modes yet falls in futile as its incapability to come across as per global trends. There are digital millions of resources especially for boosting higher education arena that is designed by national bodies, concerned university departments and other paid and non-profitting agencies.

As per the report of All India Survey on Higher Education (AISHE) 2017-18, the open and distance learning students constitute about 11% of enrolment in higher education while the gross enrolment ratio is 25.08 in India. It is estimated that the open and distance learning student's enrolment in various programmes are as following Post Graduate-29.6%, under graduate-64.3%, PG Diploma-2.3%, Diploma-2.5%, Certificate courses-1.3%. It is evident that 94% of course offered by universities and concerned authorities in open and distance education are in post graduate and under graduate level [9].

The data evidently depicts that any pitfall in quality and standard of Open and Distance education system greatly affect the productivity of Indian education system both implicitly and explicitly. Modern technological resources especially from digital consortia are conducive to replace redundant learning material and supplementing updated resources. The students of Open and Distance education are encouraged to utilise at fullest sense the digital learning tools and resources to overcome the paucity of learning exposure and there by enhance the quality of education [10]. Hence the study explores the level of utilisation of digital educational tools and resources among Open and Distance Learning students.

Review of related studies:

Nwana, Egbe and Ugwuda (2017) studied usage of e-learning materials among open university students in Nigeria. The study revealed that most of the students are aware about modern technological devices but there is low level utilisation of these resources for educational purposes among the students who are pursuing their course through from open university [11]. Olaniran, Duma and Nzima (2017) studied the utilisation of e-learning resources among teacher training students studying through Open and Distance Learning. The study found that 76% of students use e-learning resources and 42% of students use web 2.0 and social media resources for their educational purposes. It is also found that 53% of students use mobile phone as digital device for their teaching and learning activities [12]. Awadhiya, Miglani and Gowthaman (2014) found that most of distant learners have desktop/laptops but there is only low level usage of e-learning resources as most of students are accessing to internet very frequently. The students are interested in browsing social networking sites followed by educational digital resources and e-mail service providing websites. Study recommends generating e-learning tutorials complemented with social networking tools and mobile learning applications as students are interested to use internet through mobile phones [13]. Damilola (2013) found that the awareness and utilisation of digital learning resources was very low among the Open and Distance Learning students. The result also showed that there is no proper access to most of the electronic learning materials in the study centres and the Open and Distance Learning students were

not aware of various types of digital educational tools and resources available at their study centres [14]. Fozdar & Kumar (2007) found that the mobile learning can improve retention among science students of open learning students. It enhances the learning rate by improving the efficacy of IGNOU's existing learner support system. The students see as the biggest advantage of m-learning technology as it can be used anywhere, anytime [15].

Objectives of the study:

1. To find out the difference in utilisation of digital educational tools and resources among PG and UG Open and Distance Learning students.
2. To find out the difference in utilisation of digital educational tools and resources among science and arts Open and Distance Learning students.
3. To find out the difference in utilisation of digital educational tools and resources among male and female Open and Distance Learning students.
4. To find out the difference in utilisation of digital educational tools and resources among UG male and female Open and Distance Learning students.
5. To find out the difference in utilisation of digital educational tools and resources among UG science and arts Open and Distance Learning students.
6. To find out the difference in utilisation of digital educational tools and resources among PG male and female Open and Distance Learning students.
7. To find out the difference in utilisation of digital educational tools and resources among PG science and arts Open and Distance Learning students.

Hypothesis of the Study:

1. There will not be significant difference in utilisation of digital educational tools and resources among PG and UG Open and Distance Learning students.
2. There will not be significant difference in utilisation of digital educational tools and resources among science and arts Open and Distance Learning students.
3. There will not be significant difference in utilisation of digital educational tools and resources among male and female Open and Distance Learning students.
4. There will not be significant difference in utilisation of digital educational tools and resources among UG male and female Open and Distance Learning students.
5. There will not be significant difference in utilisation of digital educational tools and resources among UG science and arts Open and Distance Learning students.
6. There will not be significant difference in utilisation of digital educational tools and resources among PG male and female Open and Distance Learning students.
7. There will not be significant difference in utilisation of digital educational tools and resources among PG science and arts Open and Distance Learning students.

2. METHODOLOGY

The sample selected for the study is 168 students from open and distance mode including 68 under graduate and 100 Post graduate students pursuing their courses through from five universities (Madras University, Bharathiar University, Kerala University, Annamalai University and IGNOU). The sample for the study was selected through stratified random sampling. The tool used for the study is the Utilization of Digital Educational Tools and Resources developed by the researcher which have 25 questions from five dimensions i.e. Interactive Resources, Digital Library Resources, Multimedia Archives, M-Learning and Open Access Resources. It is four Point-Scale having the score 3, 2, 1, and 0 for the options 'Always', 'Frequently', 'Rarely' and 'Not at all' respectively. The statistical techniques used for the study Mean, Standard Deviation and t-test.

3. RESULT AND ANALYSIS

Table 1: Comparison of difference in utilisation of digital educational tools and resources among Under Graduate and Post Graduate Open and Distance Learning students

Group	N	Mean	SD	t- value	Table Value	Level of Significance
Open and Distance Learning UG Students	68	36.94	9.94	8.46	2.56	Significant at 0.01
Open and Distance Learning PG Students	100	49.43	9.04			

Table-1 shows that the mean score and standard deviation of utilisation of digital educational tools and resources among under graduate and post graduate Open and distance Learning students are 36.94, 9.94 and 49.43, 9.04. The calculated t-value is 8.46 which is significant at 0.01 level. It shows that there is a significant difference in utilisation of digital educational tools and resources among under graduate and post graduate Open and Distance Learning students as the utilisation of digital educational tools and resources among post graduate Open and distance Learning students is higher than their counterpart. Hence the null hypothesis which stated that there will not be significant difference in utilisation of digital educational tools and resources among under graduate and post graduate Open and Distance Learning students is rejected.

Table 2: Comparison of difference in utilisation of digital educational tools and resources among science and arts Open and Distance Learning students

Group	N	Mean	SD	t- value	Table Value	Level of Significance
Open and Distance Learning Science Students	72	42.44	11.46	1.92	1.96	Not significant
Open and Distance Learning Arts Students	96	45.82	11.09			

Table-2 shows that the mean score and standard deviation of utilisation of digital educational tools and resources among science and arts Open and distance Learning students are 42.44, 11.46 and 45.82, 11.09. The calculated t- value is 1.92 which is not significant at 0.05 level. It shows that there is a no significant difference in utilisation of digital educational tools and resources among science and arts Open and Distance Learning students. Hence the null hypothesis which stated that there will not be significant difference in utilisation of digital educational tools and resources among science and arts Open and Distance Learning students is accepted.

Table 3: Comparison of difference in utilisation of digital educational tools and resources among male and female Open and Distance Learning students

Group	N	Mean	SD	t- value	Table Value	Level of Significance
Open and Distance Learning Male Students	97	50.25	11.22	4.84	2.56	Significant at 0.01
Open and Distance Learning Female Students	71	41.89	10.81			

Table-3 shows that the mean score and standard deviation of utilisation of digital educational tools and resources among male and female Open and distance Learning students are 50.25, 11.22 and 41.89, 10.81. The calculated t- value is 4.84 which is significant at 0.01 level. It shows that there is a significant difference in utilisation of digital educational tools and resources among male and female Open and Distance Learning students as the utilisation of digital educational tools and resources among male Open and distance Learning students is higher than their counterpart. Hence the null hypothesis which stated that there will not be significant difference in utilisation of digital educational tools and resources among male and female Open and Distance Learning students is rejected.

Table 4: Comparison of difference in utilisation of digital educational tools and resources among UG male and female Open and Distance Learning students

Group	N	Mean	SD	t- value	Table Value	Level of Significance
Open and Distance Learning UG Male Students	36	39.33	10.89	2.16	1.96	Significant at 0.05
Open and Distance Learning UG Female Students	32	34.25	8.08			

Table-4 shows that the mean score and standard deviation of utilisation of digital educational tools and resources among under graduate male and female Open and distance Learning students are 39.33, 10.89 and 34.25, 8.08. The calculated t-value is 2.16 which is significant at 0.05 level. It shows that there is a significant difference in utilisation of digital educational tools and resources among under graduate male and female Open and Distance Learning students as the utilisation of digital educational tools and resources among under graduate male Open and distance Learning students is higher than their counterpart. Hence the null hypothesis which stated that there will not be significant difference in utilisation of digital educational tools and resources among under graduate male and female Open and Distance Learning students is rejected.

Table 5: Comparison of difference in utilisation of digital educational tools and resources among UG science and arts Open and Distance Learning students

Group	N	Mean	SD	t- value	Table Value	Level of Significance
Open and Distance Learning UG Science Students	32	34.56	10.11	2.05	1.96	Significant at 0.05
Open and Distance Learning UG Arts Students	36	39.05	9.43			

Table-5 shows that the mean score and standard deviation of utilisation of digital educational tools and resources among under graduate science and arts Open and distance Learning students are 34.56, 10.11 and 39.05, 9.43. The calculated t-value is 2.05 which is significant at 0.05 level. It shows that there is a significant difference in utilisation of digital educational tools and resources among under graduate science and arts Open and Distance Learning students as the utilisation of digital educational tools and resources among under graduate arts Open and distance Learning students is higher than their counterpart. Hence the null hypothesis which stated that there will not be significant difference in utilisation of digital educational tools and resources among under graduate science and arts Open and Distance Learning students is rejected.

Table 6: Comparison of difference in utilisation of digital educational tools and resources among PG male and female Open and Distance Learning students

Group	N	Mean	SD	t- value	Table Value	Level of Significance
Open and Distance Learning PG Male Students	61	50.24	9.35	1.12	1.96	Not Significant
Open and Distance Learning PG Female Students	39	48.15	8.5			

Table-6 shows that the mean score and standard deviation of utilisation of digital educational tools and resources among post graduate male and female Open and distance Learning students are 50.24, 9.35 and 48.15, 8.5. The calculated t-value is 1.12 which is not significant at 0.05 level. It shows that there is a no significant difference in utilisation of digital educational tools and resources among post graduate male and female Open and Distance Learning students. Hence the null hypothesis which stated that there will not be significant difference in utilisation of digital educational tools and resources among post graduate male and female Open and Distance Learning students is accepted.

Table 7: Comparison of difference in utilisation of digital educational tools and resources among PG science and arts Open and Distance Learning students

Group	N	Mean	SD	t- value	Table Value	Level of Significance
Open and Distance Learning PG Science Students	40	48.75	8.26	0.59	1.96	Not Significant
Open and Distance Learning PG Arts Students	60	49.89	10.03			

Table-7 shows that the mean score and standard deviation of utilisation of digital educational tools and resources among post graduate science and arts Open and distance Learning students are 48.75, 8.26 and 49.89, 10.03. The calculated t-value is 0.59 which is not significant at 0.05 level. It shows that there is a no significant difference in utilisation of digital educational tools and resources among post graduate science and arts Open and Distance Learning students. Hence the null hypothesis which stated that there will not be significant difference in utilisation of digital educational tools and resources among post graduate science and arts Open and Distance Learning students is accepted.

4. DISCUSSION

The study depicts that the utilisation of digital educational tools and resources among Open and Distance learning students are only an average level. The utilisation of digital educational tools and resources among under graduate Open and Distance learning students is not satisfactory. The post graduate students have higher level of utilisation of digital educational tools and resources than under graduate students of Open and Distance Learning. The male students have higher level of utilisation of digital educational tools and resources than female Open and Distance students. The arts students from Open and Distance learning also showed a higher level of utilisation of digital educational tools and resources than science students of Open and Distance learning. There is no difference in utilisation of digital educational tools and resources among post graduate Open and Distance learning students based on gender and stream of subject while it shown that there is significant difference utilisation of digital educational tools and resources among under graduate Open and Distance learning students based on gender and stream of their subjects. The post graduate students are interested to utilises digital resources because most of the universities provide digital learning material.

5. CONCLUSION

The educational bodies of India and various universities have concerted by designig many digital platforms encouraging the access of students of higher education especially Open and Distance learning students to enhance the quality of education. The fallacious traditional educational methodologies which is opted for assessment and evaluation in Open and Distance education system subvert the students' creative exposure in learning experiences. The issues regarding the quality and productivity among Open and Distance Learning cannot be tackled effectively if students are stick on traditional hand out materials. It is pertinent to curriculum framers and educational policy makers that there should be proper provisions to ensure the participation of Open and Distance Learning students in digital educational consortia as a mandatory task. The educational assessment and evaluation should be reshaped in accordance with the integration of modern educational technologies. The quality concern is prime touchstone of evaluating the standard of Indian education system that has been compared globally since years. The productivity of Open and Distance education system can be maximised by ensuring students access to various digital educational resources supplemented by national and international educational bodies and agencies.

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