

Towards an Analysis of Best Teaching Technology during Corona Days

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Abstract

Complete banned on formal way of teaching and learning during the corona days urges the need to introduce new ways of teaching using the technology. The institutions had a little time before the lockdowns to struggle with the pedagogical, cultural and epistemological consequences of going online before being educated about the policy. Any effort during the corona days was unreliable, accidental and clumsy for the change from formal education to online education without any proper study. The survey was conducted to find out the best use of technology in teaching during corona days. Quantitative research approach was utilized to record the data and chi-square test was performed to test its significance. The study showed significant differences for Email, WhatsApp and LandLine for contacting during corona days, DSL Connection, Internet Café, Friend's House and Neighbour's House for internet services, Cable, Video Conferencing for technology used for distance learning, Microsoft team, Zoom, TalnetLMS, Schoology for software of distance learning, Is loadshedding in your area?, Are mobile Signals problems in your area? and does software need improvement/change? for the barriers of online teaching through technology. Non significant differences for Mobile phone for contacting, Mobile packages for internet use, Mobile technology for distance learning and Google classroom software for teaching showed that teachers and students preferred mobile base technology for contacting, internet services and distance teaching and learning during corona days. The paper not only helps policy makers in selecting the best technology for teaching during corona days but also helps universities in attracting and retentioning students through the use of technology.

Keywords: Corona, mobile technology, Google classroom.

1. Introduction

Technology has changed the norms of teaching and learning (Czerniewicz & Haupt, 2018) especially during corona days. History of adopting technology into teaching and learning has been started since nineteen century in order to replace conventional teaching methods (Kaware & Sain, 2015).

Information communication technology (ICT) has a tremendous impact on education in terms of acquisition and absorption of knowledge among the teachers and students. The use of ICT leads to more cooperation among learners within and beyond the school and there exists a more interactive relationship between students and teachers. Use of technology in daily life activities in shopping, driving and its introduction in mobile devices has changed working patterns of the people (Anderson, 2016). The use of these technologies will be more in developing countries in near future (Poushter, 2016). No doubt, it is the age of science and technology (Akhter, 2020). People prefer to access internet through android mobiles instead of spending money on expensive laptops and tablets (Anderson & Horrigan, 2016). Technology is

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considered a tactical response for the people who discuss teaching as an ill profession. (Swartz, Gachago & Belford, 2018).

Teacher's attitudes toward computers are a key factor in the successful implementation of ICT in education. Tauson and Stannard (2018) elaborated different use of technologies to improve teaching practices in uncertain environment. Resilient blended learning techniques were also reported in uncertain teaching circumstances (Mackey, et al., 2012). Mackey et al. (2012) stated the need of creative and innovative solutions for academic plans when there was no constant teaching schedules, students were dispersed or a civil emergency was enforced in the country. It resulted in emerging of academic plans focusing on use of technology (Czerniewicz & Haupt, 2018; Kilfoil, 2018).

Continous advancement of new technology has created problems for the universities to adopt the changing environment (Amirault, 2012; Kinchin, 2012). Universities are struggling against the barriers to technology like institutional policy, teacher beliefs and fear of change among the faculties. The universities may use technologies to attract the learners while teachers may have the issues to relate it with the conventional methods (Lawrence & Lentle-Keenan, 2013; Lin, Singer, & Ha, 2010). Lack of training and technology use among the teaching staff may affect their potential to guide the students (Ashrafzadeh & Sayadian, 2015; Buchanan, Sainter, & Saunders, 2013; Hauptman, 2015; Johnson, 2013; Kidd, Davis, & Larke, 2016; Kopcha, Rieber, & Walker, 2016). Universities are also facing competition due to technology oriented market demands. Students having knowledge of latest technology are easily consumed in the public and private sectors (Gikas & Grant, 2013; Paul & Cochran, 2013).

Universities miss the opportunities to retain and attract the students which fail to coincides with market demands and do not consider technology in establishing their academic policy (Sun & Chen, 2016; Westera, 2015). Formal teaching methodologies lead to passive transfer of knowledge from teacher to the students (Boghossian, 2006). But the introduction of technology not only fasten the knowledge transfer but also promote student centered approach instead of teacher centered. (Haggis, 2009; Wright, 2011). Considering the need of study, following objectives are set 1) the best ways of contacting during the corona days. 2) which kind of technology and softwares are the best for teaching and learning.

2. Methodology

The objective of the research was to investigate the role of technology in teaching during corona days. The objective was achieved through quantitative research. Bryman (2006) illustrated the significance of quantitative research as it depicts generalization about the studied population. The research used questionnaire to collect the data for analysis. The participants of this study were (N=160) teachers and students who were the main actors during the formal education in the universities. A questionnaire was fed to different teachers and students to collect the data in a face to face meeting by maintaining social distancing in corona days. The first part of the questionnaire limited to demographic information of the individuals like gender, age and official status (teacher and student). The second part of the questionnaire explored how teachers and students liked to be connected in corona days (email, mobile phone, whatsapp, landline, ordinary mail). The third section of the questionnaire illustrated the services provider for the use of internet (DSL connection, mobile packages, internet café, friend,s house, neighbour's house). The fourth section investigated the different technologies available for distance learning(T.V., mobile, cable, dish, video conferencing). The fifth section contained information about the software available for distance teaching (Microsoft team, zoom, googleclassroom, talentLMS, schoology). The sixth section explored the barriers involved in online teaching like is loadshedding in your area?, Are mobile Signals problems in your area, does software need improvement/change, is training necessary, does quality of course need improvement, and does backup need on the websites. The data collected in quantitative research was analyzed for independence of the data through chi square test. It was further investigated whether any relationship exhibited between the teachers and students about the use of technology for the teaching.

3. Results

The objective of the study was to sort out the role of technology in teaching during the corona days. The research was worked out on the population having size of 160. Each variable (teacher and students) has equal (N=80) representation in the population. It has been studied that teachers preferred to contact 95% through email, 97.5% through mobile phone, 97.5% through WhatsApp, 51.2% through LandLine and 25% through ordinary mail. Similarly students preferred 70% through

email, 98.7% through mobile phone, 87.5% through WhatsApp, 31.2% through LandLine and 18.8% through ordinary mail (table 1). It was further sorted out how teachers and students accessed the internet. It was observed that 70% and 50% of teachers and students used DSL connection, 88.8% and 75% of teachers and students used mobile packages, 6.2% and 37.5% of teachers and students used internet cafe, 2.5% and 31.5% of teachers and students used friend's house respectively while 11.2% of the students only used neighbour's house for the internet (table 2). It was studied that 95% of teachers and 90% of students interested in distance learning through T.V., 92.5% of teachers and 90% of students through mobile, 75% of teachers and 50% of students through cable, 25% of teachers and 31.5% of students through dish and 81.5% of teachers and 43.8% of students through video conferencing (table 3). The research further investigated the use of softwares for distance teaching. It was observed that 75%, 37.5%, 93.7%, 25% and 25% of the teachers were interested in Microsoft team, Zoom, Google classroom, TalnetLMS and schoology respectively while 25%, 25%, 90%, 12.5% and 8.5% of the students were interested in Microsoft team, Zoom, Google classroom, TalnetLMS and schoology respectively (table 4). It was further studied to point out the barriers associated with online teaching through technology. It was observed that 12.5% of teachers and 41.2% of students elaborated loadshedding issues in their areas, 6.2% of teachers and 46.2% of students elaborated signal problems in their areas, 87.5% of teachers and 81.2% of students elaborated the importance of training, 56.2% of teachers and 43.8% of students elaborated the need to improve the quality of courses, 25% of teachers and 86.2% of students elaborated the need for software improvement/change and 96.2% of teachers and 93.8% of students emphasized the need of backup of lectures on the university website (table 5). The chi square values in table 6 showed that there was a significant difference among the teachers and students about the Email, WhatsApp, LandLine, DSL Connection, Internet Café, Friend's House, Internet access, Cable, Video Conferencing, Microsoft team, Zoom, TalnetLMS, Schoology, Is loadshedding in your area?, Are mobile Signals problems in your area? And does software need improvement/change? While non significant difference was observed for Mobile phone, Ordinary mail, Mobile packages, T.V., Mobile, Dish, Google classroom, Is training necessary?, does quality of

course need improvement?, and Does backup need on the websites? at $P \leq 0.05$.

4. Discussions

History of reframing the role of technology in education started in the last century. (Westera, 2015). Special studies are supported to find out the role of technologies in making association between past and future. (Adam, 2019). Incorporation of technology in mobile devices has changed life styles of the people (Zickuhr & Raine, 2014; Smith & Anderson, 2016). Different techniques were Adopted for teaching in uncertain teaching circumstances (Tull, Dabner & Ayebi-Arthur, 2017). Similar kind of use of technology was already taken in the South Africa during the shutdown in the universities. These unavoidable situations led to introduction of technology in academic policy. (Meintjes, 2018; Tekane, Louw & Potgieter, 2018).

Availability of versatile kind of technology in the market has created problems for the universities to adopt the changing environment (Linder-VanBerschoot & Summers 2015; Westera, 2015). Lack of resources for the training and unwillingness of the teaching staff to adopt new technology may affect their potential to meet current market demands (Kopcha, Rieber, & Walker, 2016; Lawrence & Lentle-Keenan, 2013; Lewis, Fretwell, Ryan, & Parham, 2013; Reid, 2014). Technology oriented stuff easily gets jobs in the market creating competition among the universities to introduce technology oriented teaching (Amirault, 2012; Cassidy et al., 2014). The universities which fail to add technology in teaching, not only loose admission but also unable to retain students in their institutions (Amirault, 2012; Cook & Sonnenberg, 2014; Revere & Kovach, 2011).

Warschauer (2002) and Zhao and Frank (2003) described the role of technology in the education. The study showed that people preferred to contact through email and mobile phone during corona days. Our findings endorsed the study of Zhao and Frank (2003). It was observed that 75% of teachers and students used mobile packages for internet connection. Our findings are against the study of Rogers (1995) who elaborated that people are reluctant to adopt new technology for exploring their hidden abilities. It was observed that teachers and students preferred distance learning through mobile technology. Our study was in accordance with Ertmer (2005) and Wozney et al. (2006) findings who reported the technology integration in teaching changed perception and practices of the individuals.

Aykaç (2005) described that internet had made the world as a global village and minimize the intercultural issues. Softwares help in distance teaching. Dockstader (2008) reported that teachers knew about the integration of technology in teaching. It was studied that Google classroom was the best teaching software in corona days. Our findings support the study of Tauson and Stannard (2018). Potgieter et al. (2018) reported the shifting of courses online during lockdown period at university of Pretoria. They emphasized the need of backup of lectures on the university website. In our study, majority of teachers and students emphasized the need of training and need of backup of lectures on the university website. Born in technological era does not mean to be skillful in technology (Bennett et al., 2008). The chi-square test was performed to test the significant differences among the variables studies. The study showed significant differences for Email, WhatsApp and LandLine for contacting during corona days, DSL Connection, Internet Café, Friend's House and Neighbour's House for internet services, Cable, Video Conferencing for technology used for distance learning, Microsoft team, Zoom, TalnetLMS, Schoology for software of distance learning, Is loadshedding in your area, are mobile Signals problems in your area, does software need improvement/change and for the barriers of online teaching through technology.

5. Conclusion

Use of Mobile phone for contacting, Mobile packages for internet use, Mobile technology for distance learning and Google classroom software for teaching showed that teachers and students preferred mobile base technology for contacting, internet services and distance teaching and learning in corona days.

Declaration

Availability of data and materials
All the data relevant to the research are available in the paper.

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Table 1. Statistics of contacting during corona days.

Variables	Total	Email				Mobile phone				WhatsApp				LandLine				Ordinary mail			
		User		Nonuser		User		Nonuser		User		Nonuser		User		Nonuser		User		Nonuser	
		F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P
Teachers	80	76	95	4	5	78	97.5	2	2.5	78	97.5	2	2.5	41	51.2	39	48.8	0	25	60	75
Students	80	56	70	24	30	79	98.7	1	1.25	70	87.5	10	12.5	25	31.2	55	68.8	5	18.8	65	81.2

F = frequency, P = percentage

Table 2. Statistics for services available for the use of internet.

Variables	Total	DSL Connection				Mobile packages				Internet Café				Friend's House				Neighbour's House			
		User		Nonuser		User		Nonuser		User		Nonuser		User		Nonuser		User		Nonuser	
		F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P
Teachers	80	56	70	24	30	71	88.8	9	11.2	5	6.2	75	93.8	2	2.5	78	97.5	0	80	100	
Students	80	40	50	40	50	72	90	8	10	30	37.5	50	62.5	25	31.5	55	68.8	11.2	71	88.8	

F = frequency, P = percentage

Table 3. Technology used for distance learning.

Variables	Total	T.V.				Mobile				Cable				Dish				Video Conferencing			
		User		Nonuser		User		Nonuser		User		Nonuser		User		Nonuser		User		Nonuser	
		F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P
Teachers	80	76	95	4	5	74	92.5	6	7.5	60	75	20	25	20	25	60	75	5	81.5	15	18.5
Students	80	72	90	8	10	72	90	8	10	40	50	40	50	25	31.5	55	68.8	5\	43.8	45	56.2

F = frequency, P = percentage

Table 4. software's used for distance teaching.

Variables	Total	Microsoft team				Zoom				Google classroom				TalnetLMS				Schoology			
		User		Nonuser		User		Nonuser		User		Nonuser		User		Nonuser		User		Nonuser	
		F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P
Teachers	80	60	75	20	25	30	37.5	50	62.5	75	93.7	5	6.3	20	25	60	75	0	25	60	75
Students	80	20	25	60	75	20	25	60	75	72	90	8	10	10	12.5	70	87.5		8.5	73	91.5

F = frequency, P = percentage

Table 5. Barriers for online teaching through technology.

Variables	Teachers				Students			
	Y		N		Y		N	
	F	P	F	P	F	P	F	P
Is loadshedding in your area?	10	12.5	70	81.5	33	41.2	47	58.8
Are mobile Signals problems in your area?	5	6.2	75	93.8	37	46.2	43	53.8
Is training necessary ?	70	87.5	10	12.5	65	81.2	15	18.8
does quality of course need improvement?	45	56.2	35	43.8	35	43.8	45	56.2
does software need improvement/change?	20	25	60	75	69	86.2	11	13.8
Does backup need on the websites?	77	96.2	3	3.8	75	93.8	5	6.2

Table.6. Chi square values of technology variables for teachers and students.

Variables	Chi-square value	P-value
Email	21.645	0.0001*
Mobile phone	01.000	0.3172 ^{NS}
WhatsApp	06.793	0.0091*
LandLine	08.267	0.0040*
Ordinary mail	01.049	0.3057 ^{NS}
DSL Connection	08.333	0.0038*
Mobile packages	00.053	0.8175 ^{NS}
Internet Café	29.836	0.0001*
Friend's House	29.125	0.0001*
Neighbour's House	38.506	0.00001*
T.V.	01.801	0.1794 ^{NS}
Mobile	00.058	0.8094 ^{NS}
Cable	13.333	0.0002*
Dish	01.202	0.2728 ^{NS}
Video Conferencing	29.205	0.0001*
Microsoft team	50.000	0.0001*
Zoom	06.339	0.0118*
Google classroom	00.586	0.4468 ^{NS}
TalnetLMS	04.678	0.0305*
Schoology	09.071	0.0025*
Is loadshedding in your area?	19.452	0.0001*
Are mobile Signals problems in your area?	41.580	0.0001*
Is training necessary ?	01.339	0.2471 ^{NS}
does quality of course need improvement?	02.880	0.0896 ^{NS}
does software need improvement/change?	02.094	0.3508*
Does backup need on the websites?	00.865	0.3521 ^{NS}