Research Paper

Constraints Faced by Students of Agricultural Universities in Digital Learning

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ABSTRACT

Digital technology is the major game-changer in human history. Digital technology is implemented into our everyday life. With the introduction of digital devices and cell phones into student education, high-speed internet and digital devices were given top priority in urban and rural India. However, in the wake of the Covid-19 pandemic, it becomes mandatory to conduct online classes for the students to continue their academic curriculum. Although the students are facing number of challenges in usage of digital learning and different adaptation strategies are adopted by students also. The purpose of the study was to determine the challenges and adaptation in Digital Learning by the students of Agricultural Universities. For this research, two universities, namely Bihar Agricultural University, Sabour and Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, were purposefully selected, and from each college, 60 students were randomly selected. Total of 120 students was chosen from both colleges. The results of study depicted that majority students chose deficiency of printers, lack of interrupted internet service, slow processing speed of devices, high initial cost of digital tools, distraction during lecture, sleep cycle causing eye-irritation, headache, backpain and other physical and mental stresses.

HIGHLIGHTS

◉ Many factors influence the adoption and acceptance of digital learning technology by teachers and students. In digital learning, students often face challenges like the unreliable internet, slow device processing speed, high initial costs of digital tools, distractions during lectures, and physical and mental stressors such as eye irritation, headaches, and back pain caused by disrupted sleep cycles.

Keywords: Challenges, Digital devices, Digital learning, Online class, backpain, stress

A variety of factors influence both teachers' and students' adoption and acceptance of digital learning technology in the teaching-learning process. However, since the nature of Digital Learning relies heavily on students voluntarily accessing and interacting with the computer and the internet technology. Researchers suggest that one of the biggest challenges for Online Learning is student retention. The major constraint that these students' faces concerning the use of the internet were slow speed and information overloading and irrelevant

information (Malik and Mahmood, 2010) although students agreed smartphones are more advantageous in Digital Learning (Choudhary, 2016). Students utilize online education devices at medium extent, majority of students prefer laptop and smartphone as device and in application search engines Google Chrome and M.S. Word was priorities for research activity and others (Doddamani *et al.* 2020). Furthermore, the use of online social media would enable students to become more innovative, dynamic, and connected to global instructors for collaborative learning (Ansari *et al.* 2020). Digital learning in the College of Agriculture had the experience of online classes provided greater time flexibility and enabling students to avoid time conflicts of scheduling classes or work (Jayaratne and Moore 2017). Highest-rated disadvantage of e-learning system was the 'technology issues' factor (Yaghoubi *et al.* 2008). Learners do face some problems such as password problems, computer vision syndrome (CVS), fingers' joint pain, backache, dizziness & headache, and electricity failure (Hussain, 2007).

METHODOLOGY

The study was conducted in Bihar Agricultural University (BAU), Sabour and Bidhan Chandra Krishi Viswavidyalaya (BCKV), Mohanpur. Both these universities are renowned agricultural universities in eastern India. A total of sixty students were selected randomly from each university for the study, whereas 30 students were from Under Graduate (UG), 20 students from Post Graduate (PG) and 10 students from PhD. Over all 120 students were selected from both the universities. Questionnaire was developed for data collection and it included both, closed ended as well as open-ended questions. The responses of the respondents regarding the tools and techniques used for digital learning by the students was collected in 5-point Likert Scale (1932) i.e. to very frequent, frequent, sometimes, rarely and never. The gathered data was collected, tabulated, analysed and interference were made in accordance with objective.

RESULTS AND DISCUSSION

Infrastructural constraints faced by the students in digital learning in which 'Deficiency of printer in hostel' stands at first rank with overall MPS 81.3. The same trend seen in both universities with MPS 81.4 and 80.6 in BAU and BCKV respectively. 'Interrupted internet speed' stands second with overall MPS 79.8. The same ranking shown in BAU with MPS 81, and in BCKV it stands at third position with MPS 78.6. 'Deficiency of computers' stands third position with overall MPS 78.6. It stands third in BAU also with MPS 79, where in BCKV it stands at fourth position with MPS 78.3. 'Electricity breakdown' stands at fifth position with overall MPS 75.1. The same stand at second position in BCKV with MPS 79.6 and in BAU it stands at fifth position with MPS 70.6. 'Limited power backup' stands at fifth position with overall MPS 71.8. The same trend had seen in both universities where it stands at fifth with MPS 71 and 72.6 in BAU and BCKV (Table 1).

Table 1: Infrastructural constraints faced by the students in use of digital learning

Sl. No.	Infrastructural Constraints	BAU, Sabour (n1= 60)		BCKV, Mohanpur (n2= 60)		Overall (Total) (n=120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Deficiency of computers	79	III	78.3	IV	78.6	III
2	Interrupted internet speed	81	II	78.6	III	79.8	II
3	Deficiency of printer in hostel	81.4	I	80.6	I	81.3	I
4	Limited power backup	71	IV	72.6	V	71.8	V
5	Electricity breakdown	70.6	V	79.6	II	75.1	IV

MPS = Mean Percent Score.

Students faced different technical constraints in digital learning. 'Slow processing speed of devices' stands first with overall MPS 81.1. The same trend had seen in both universities, it stands first with MPS 80 and 82.3 in BAU and BCKV respectively. 'Virus threats which can destroy information' stands at second with overall MPS 75.6. It stands fourth in BAU with MPS 74 and in BCKV it stands at third with MPS 77,3. 'Issues regarding privacy' ranked third with overall MPS 74.6. In BAU, this technical constraint ranked second with MPS 75, and BCKV it ranked fifth with MPS 73.3. 'Lack of training' ranked fourth with overall MPS 73.6. It ranked third in BAU with MPS 74.3, and in BCKV it ranked sixth with MPS 73. 'Poor knowledge of software and hardware' stands at sixth position with overall MPS 73. The same ranking pattern has seen in BCKV with fourth rank for MPS 73, following the same trend in BAU it ranked sixth with MPS 73 and in BCKV it ranked fifth with MPS 73.3. 'Limited facilities to repair computers and laptops' stands at fifth position with overall MPS 73.5. The same rank holds by BAU for the same constraints with MPS 73.6 and it ranked fourth in BCKV with 73.6. 'Insufficient memory capacity of digital devices' stands

at second position with overall MPS 75.6. It ranked seventh in BAU with MPS 72.6 and in BCKV it ranked second with MPS 78 (Table 2).

It is highlighting mostly economical constraints where, 'High initial cost of digital tools' was the major issue faced by the students. It stands at first position with overall MPS 78.8. The same trend shown in both the universities it ranked first with MPS 79 and 78.6 in BAU and BCKV respectively. 'High subscription cost for online courses' ranked second with overall MPS 74.3. It ranked second in both the universities individually with MPS 76 and 72.6 in BAU and BCKV respectively. 'High cost of maintenance of digital devices' stands third with overall MPS 72.3, following the same BCKV also ranked third with MPS 69.6 and BAU ranked fourth with MPS 75. 'High cost of operational software' stands fourth with overall MPS 71.3, it ranked the same in BCKV with MPS 66.3 and in BAU it stands at fifth position with MPS 74. 'High cost of training courses' stands at fifth position with overall MPS 70.6. It ranked the same fifth position in BCKV with MPS 66.3 and in BAU it ranked third with MPS 75.2 (Table 3).

Table 2: Technical constraints faced by the students in use of digital Learning

Sl. No.	Technical Constraints	BAU, Sabour (n1= 60)		BCKV, Mohanpur (n2= 60)		Overall (Total) (n=120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Slow processing speed of device	80	I	82.3	I	81.1	I
2	Virus threats which can destroy information	74	IV	77.3	III	75.6	II
4	Issues regarding privacy	75	II	73.3	V	74.6	III
5	Lack of training	74.3	III	73	VI	73.6	IV
6	Poor knowledge of software and hardware	73	VI	73.3	V	73	VI
7	Limited facilities to repair computers and laptops	73.6	V	73.6	IV	73.5	V

MPS = Mean Percent Score.

Table 3: Constraints in cost of digital devices faced by the students in use of digital learning

Sl. No.	Challenges in cost of digital learning	BAU, Sabour (n1= 60)		BCKV, Mohanpur (n2= 60)		Overall (Total) (n=120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	High initial cost of digital tools	79	I	78.6	I	78.8	I
2	High cost of maintenance of digital devices	75	IV	69.6	III	72.3	III
4	High cost of operational software	74	V	68.6	IV	71.3	IV
5	High cost of training courses	75.2	III	66.3	V	70.6	V
6	High subscription cost for online courses	76	II	72.6	II	74.3	II

MPS = Mean Percent Score.

Table 4: Adaptability challenges faced by the students in use of digital learning

Sl. No.	Adaptability challenges	BAU, Sabour (n₁= 60)		BCKV, Mohanpur (n2= 60)		Overall (Total) (n=120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Digital Learning environment is different from classroom environment	82.3	I	80.66	I	71.5	IV
2	Self-learning feature of digital learning	81	II	77	III	79	II
3	Absence of peer influence in digital Learning	74.6	IV	71	IV	72.8	III
4	Distraction constraints during digital Learning	80.3	III	78	II	79.1	I
5	Problem with non-technical person	68	V	70	V	69	V

MPS = Mean Percent Score.

Table 4 indicating adaptability challenges experienced by students during digital learning. Here it is highlighted that 'Distraction constraints during digital learning' stands at first position with overall MPS 79.1. It ranked third in BAU with MPS 80.3 whereas, in BCKV it ranked second with MPS 78. 'Self-learning feature of digital learning' ranked second with overall MPS 79. The same ranking pattern had seen in BAU with MPS 81, and in BCKV it ranked third with MPS 77. 'Absence of peer influence in digital Learning' stands at third position with overall MPS 72.8. It ranked fourth in both the universities with MPS 74.6 and 71 in BAU and BCKV respectively. 'Digital Learning environment is different from classroom environment' stands at fourth rank with overall MPS 71.5. In BAU it was the most severe adaptability constraints and hence ranked first with MPS 82.3, In BCKV also the trend followed and it ranked first wit MPS 80.66. 'Problem with non- technical person' stands at fifth position with overall MPS 69. It ranked fifth in both the universities with MPS 68 and 70 in BAU and BCKV respectively.

Providing information about mental and physical constraints is experienced by students in digital learning. Here 'The radiation from the screen of devices causing eye irritation, headache etc' was the severe most constraints faced by students to use gadgets with overall 85.33 MPS. In both universities it stands at first rank with 85.6 MPS at BAU and 85 MPS at BCKV. 'Excess use of digital devices affects the sleep cycle' stands at second position with overall MPS 83.3. It ranked second in both the universities second position with MPS 84.6 and 82 in

BAU and BCKV respectively. 'Constantly sitting in front of computer causes back pain' stands at third position with overall MPS 81.8. It ranked third in BAU with MPS 84.3 and in BCKV it stands at fifth position. 'Digital Learning can create isolation problem for the students' ranked fourth with overall MPS 81.6. Following the same ranking pattern, it ranked fourth in BAU with MPS 82 and in BCKV it ranked third with MPS 81.33. 'Excess use of Digital learning devices causes irritation, mood swings' stands fifth position with overall MPS 79.6, the same ranking seen in BAU with MPS 79 and in BCKV it ranked fourth with MPS 80.33 (Table 5).

Challenges to be self-motivated during the digital learning course is presented here. Here it is highlighted that 'Difficulties in staying motivated' was the severe constraints faced by the students, and it ranked first position with over all MPS 77.1. The trend followed in both the universities where it ranked first position with MPS 77.6 and 76.6 in BAU and BCKV. 'Lack of appreciation by teacher and peer groups' ranked second position with overall MPS 71.8. It ranked second in BAU with MPS 73.3 and in BCKV it ranked third with MPS 68.33. 'Problem of depression among the students' stands at third position with overall MPS 70.8. The trend followed in BAU with MPS 70 it ranked third and in BCKV it ranked second with MPS 71.66. 'Lack of self-confidence due to lack of technical knowledge' stands at fourth position with overall 64.3 MPS. It ranked the same second position in both the universities with MPS 64 and 64.6 in BAU and BCKV respectively.

Table 5: Mental & Physical constraints faced by the students in use of digital learning

Sl. No.	Mental & Physical constraints	BAU, Sabour (n1= 60)		BCKV, Mohanpur (n2= 60)		Overall (Total) (n=120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Excess use of Digital learning devices causes irritation, mood swings	79	V	80.33	IV	79.6	V
2	Constantly sitting in front of computer causes back pain.	84.3	III	79.33	V	81.8	III
3	The radiation from the screen of devices causing eye irritation, headache etc	85.6	I	85	I	85.3	I
4	Excess use of digital devices affects the sleep cycle	84.6	II	82	II	83.3	II
5	Digital Learning can create isolation problem for the students	82	IV	81.33	III	81.6	IV

Table 6: Challenges in self-Motivation faced by the students in use of digital learning

Sl. No.	Challenges in self-Motivation	BAU, Sabour (n1= 60)		BCKV, Mohanpur (n2= 60)		Overall (Total) (n=120)	
		MPS	Rank	MPS	Rank	MPS	Rank
1	Difficulties in staying motivated in course duration	77.6	I	76.6	I	77.1	I
2	Problem of depression among the students	70	III	71.66	II	70.8	III
3	Lack of appreciation by teacher and peer groups	73.3	II	68.33	III	71.8	II
4	Lack of self-confidence due to less of technical knowledge	64	IV	64.6	IV	64.3	IV

MPS = Mean Percent Score.

Table 7: Suggestions to improve digital learning

Sl. No.	Suggestions	BAU, Sabour (n1= 60)			BCKV, Mohanpur (n2= 60)			Overall (Total) (n=120)		
		f	%	Rank	f	%	Rank	f	%	Rank
1	Uninterrupted internet connections to be provided	57	95	I	55	91.6	II	112	93.3	I
2	Providing printers facility along with computers at hostel	46	76.6	IV	52	86.6	III	98	81.6	III
3	Subsidies to students for purchase and maintenance of devices	52	86.6	II	58	96	I	110	91.6	II
4	Arranging training for effective use of computers	26	43.3	VII	40	66.6	VI	66	55	VI
5	Providing power back-up in hostel	31	51.6	V	35	58.3	VII	66	55	VI
6	Time of access the E-resources in the library should be increased	49	81.6	III	48	80	IV	97	80.8	V
7	Providing digital version of important book to related field	30	50	VI	43	71.6	V	73	60.8	V

*f = Frequency; %= Per Cent; *Multiple Response.*

Table 7 revealed university wise comparison and it showed that 'Uninterrupted internet connections to be provided' ranked first as 95 % students of BAU agreed whereas 91.6 % students of BCKV agreed and it ranked second position. 'Providing printers facility along with computers at hostel' ranked fourth as 76.6 % students of BAU agreed, and in BCKV it ranked third as 86.6 % students agreed. 'Subsidies to students for purchase and maintenance of devices' ranked second position as 86.6% students of BAU agreed, whereas in BCKV it

ranked first position as 96 % students agreed. 'Arranging training for effective use of computers' ranked seventh position as 43.3 % students of BAU agreed, and it ranked sixth position in BCKV as 66.6 % students agreed. In BAU 51.6 % students agreed on 'Providing power back-up in hostel' and got fifth position, and in BCKV 58.3 % students agreed and got seventh rank. 'Time of access the E-resources in the library should be increase' ranked third as 81.6 % students of BAU agreed and in BCKV it ranked fourth as 80 % students agreed. 'Providing digital version of important book to related field' ranked sixth as 50 % students of BAU agreed and in BCKV it ranked fifth as 71.6% students agreed.

CONCLUSION

Digitalization of education is galloping and COVID 19 pandemic pave it further more. Academic institutions prioritize this domain for quality education and more access by students in content and instructors. However, equity in access of digital education across the students is not uniform. Students faced number of barriers. From the study it can be concluded that major challenges agriculture students faced in digital learning were slow processing speed of device, high initial cost of digital tools, high subscription cost for online courses, digital learning environment is different from classroom environment; radiation from the screen of devices causing eye irritation, headache etc; excess use of digital devices affects the sleep cycle; difficulties in staying motivated in course duration; and lack of uninterrupted internet connections. Digital learning is need of the hour, hence, the problems faced by the students should be overcome and they should be support and trained to cope with the challenges.

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