

Mobile Usage Behavior among Agricultural Students in Haryana

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ABSTRACT

Mobile is a versatile technological tool used by the students for multiple purposes especially during COVID-19 pandemic viz., communication, education, research and entertainment. A study was carried out to assess the mobile usage behavior among the students of Chaudhary Charan Singh (CCS) Haryana Agricultural University, Hisar. Empirical data were collected personally from 200 students through a structured interview schedule and analyzed using standard methodology. Findings revealed that all the students used mobile daily for more than 4 hours. More than half of the students (54.00%) used Xiaomi/MI mobile phone with Jio network services for entertainment and communication purpose compared to academic and professional purpose. Social networking apps were most frequently visited by the students followed by entertainment and educational apps. Study also revealed that personality traits viz.; age, education, medium of schooling, schooling, annual expenditure, scientific orientation, mass media exposure, information seeking behavior and risk orientation exhibited positive and significant correlation with their usage behavior of mobile at 0.05 level of probability.

Keywords: Agricultural students, COVID-19, Mobile usage behavior, Technology integration

INTRODUCTION

Indian agriculture-over the years is getting more complex due to globalization, impact of climate change, entry of the corporate sectors in agriculture value chain, expanding demand for processed food and need for post-harvest technology. To address these challenges of 21st century, India will need rich capital of highly qualified, motivated and well-trained agricultural scientists (Ponnusamy and Pachaiyappan, 2018). However, it is the responsibility of the State Agricultural Universities (SAUs) to provide such human resources (Tamboli and Nene, 2013). But, SAUs comprise approximately 9 per cent of all the universities in the country, enrolment in agriculture and allied sciences is less than 1 per cent of the total enrolment in higher education. Therefore, there

is an immense need to focus on the quantity and quality of agricultural education to increase agricultural productivity to feed the millions of peoples across the country (National Education Policy, 2020).

Mobile phone, as an Information and Communication Technology (ICT) tool, overcomes some of the most challenging issues related to educational system especially access, equality and quality. Mobile phones have become an integral part of our lifestyles and their diffusion has been widening more rapidly. In India, with a 1.3 billion people, the wireless subscription as on January 2021 was 1163.4 million (TRAI, 2021). Mobile phones as on 2019 were 1.16 billion and expected to rise by 1.24 billion by 2023 (Telecom Statistics India, 2019). During the outbreak of COVID-19 pandemic due to

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social distancing, the only way to get education is through online medium (Gupta and Sharma, 2020). The mobile phone as an online medium offers a wide range of opportunities to the students viz.; provide increasing access through the distance mode, a knowledge network, overcoming shortages of skilled and experienced instructors, enhancing literacy, broadening the availability of quality e-contents, developing quality e-contents, providing contents on demand, professional development, creating a literacy conducive environment and virtual classrooms (Malik, 2019). Several mobile apps has been launched by the Government of India and other organizations under Digital India Campaign (2015) i.e. SWAYAM, DIKSHA, e-PG pathsala, e-Gyankosh, Pusa Krishi, Startup India, WhatsApp, Facebook, Zoom, Google meet, etc. to revolutionize the connectivity and to transfer the desired information to the students at the earliest (National Education Policy, 2020). Educational systems have a great deal to offer in pointing the way for increasing the use of knowledge and information in the future through the mobile phone.

Keeping in view the above facts and importance, the study was conducted with the objective to assess the mobile usage behavior among agricultural students of CCS Haryana Agricultural University, Hisar.

METHODOLOGY

The study was carried out among three constituent colleges of CCS Haryana Agricultural University, Hisar i.e. College of Agriculture, College of Agricultural Engineering & Technology and IC College of Home Sciences. Under-Graduate (Prefinal and Final year) and Post-Graduate (MSc and Ph D) students of the respective colleges registered during the session of 2017-18 were selected as the sample of the study. There were 994 students registered in UG (162 Pre-final year and 178 final year) and PG programme (363 MSc and 291 PhD). Out of them, 200 students were selected through proportionate random sampling and data were collected through personal interview technique with the help of well-structured and pre-tested interview schedule. Empirical data were tabulated and analyzed using 26th version of the Statistical Package for Social Sciences (SPSS) for computing frequency, percentage,

mean and correlation and regression analysis. The responses of students' were obtained on three-point continuum in case of usage behavior (frequently, occasionally and never) and scores were given as 2, 1 and 0, respectively and weighted mean score (WMS) and rank order were assigned accordingly. Utilization index was calculated with following formula:

$$\text{Utilization index} = \frac{\text{Total obtained utilization score}}{\text{Maximum possible obtained utilization score}} \times 100$$

RESULTS AND DISCUSSION

Relationship between respondent's personality traits with their usage behavior of mobile presented in Table 1 reveal that the student's personality traits like age (0.221), education (0.581), medium of schooling (0.447), schooling (0.225), scientific orientation (0.417), annual expenditure (0.231), mass media exposure (0.441), information seeking behavior (0.541) and risk orientation (0.321) exhibited positive and significant correlation at 0.05 level of probability with their usage behavior of mobile. While in case of the 'partial regression coefficient'; age (0.433), education (0.560), medium of schooling (0.562), scientific orientation (0.234), mass media exposure (2.022), information seeking behavior (0.134) and risk orientation (0.331) were found significant. However, schooling (0.245) and annual expenditure (0.242) did not significantly contribute with the usage behavior of mobile. These findings were partially supported by the report of Murali and Venkatamaiah (2008). Further, it was also revealed that all the nine independent variables in the study jointly contributed 69.85 per cent variation in the usage behavior of mobile when other factors were kept constant.

Brand, cost and network services of mobile owned by students

Examination of the data presented in Table 2 indicated that more than half of the respondents (54.00%), owned 'Xiaomi/MI' mobile phone, followed by 'Vivo' (14.50%), 'Oppo' (10.50%), 'Samsung' (08.00%), 'Apple' (06.00%), 'Nokia' (04.00%) and 'Others' (Lenovo, Motto, Blackberry, etc.) (03.00%). Regarding cost of mobile, majority of the respondents (50.50%) had with cost 'more than Rs. 10000' followed

Table 1: Relationship between respondents' personality traits with their usage behavior of mobile (n=200)

Personality traits	Correlation coefficient 'r' value	Regression coefficient 'b' value	't' values
Age	0.221*	0.433	2.109*
Education	0.581*	0.560	5.124*
Schooling	0.225*	0.245	1.219 ^{NS}
Medium of schooling	0.447*	0.562	4.486*
Annual expenditure	0.231*	0.242	1.192 ^{NS}
Scientific orientation	0.417*	0.234	5.256*
Mass media exposure	0.441*	2.022	4.300*
Information seeking behavior	0.541*	0.134	3.301*
Risk orientation	0.321*	0.331	2.796*

Note: * Significant at $p = 0.05$ level NS= Non- Significant $R^2=0.6985$

Table 2: Brand, cost and network services of mobile owned by students (n= 200)

Particulars	Students			Rank order
	UG (n=69) F (%)	PG (n=131) F (%)	OA (n=200) F (%)	
Brand of mobile				
Nokia	03 (04.34)	05 (03.81)	08 (04.00)	V
Vivo	16 (23.18)	13 (09.92)	29 (14.50)	II
Samsung	06 (08.69)	10 (07.63)	16 (08.00)	IV
Xiaomi/ MI	27 (39.13)	81 (61.83)	108 (54.00)	I
Apple	03 (04.34)	09 (06.87)	12 (06.00)	V
Oppo	12 (17.39)	09 (06.87)	21 (10.50)	III
Others (Lenovo, Motto, Blackberrey, etc.)	02 (02.89)	04 (03.05)	06 (03.00)	VII
Cost of mobile owned				
Up to Rs. 3000	14 (20.28)	03 (02.29)	17 (08.50)	V
Rs.3001-5000	12 (17.39)	07 (05.34)	19 (09.50)	IV
Rs.5001-8000	06 (08.69)	19 (14.50)	25 (12.50)	II
Rs.8001-10000	09 (13.04)	29 (22.13)	38 (19.00)	III
More than Rs. 10000	28 (40.57)	73 (55.72)	101 (50.50)	I
Mobile network services used				
BSNL	28 (40.57)	29 (22.13)	57 (28.50)	IV
Airtel	18 (26.08)	47 (35.87)	65 (32.50)	III
Idea	41 (59.42)	33 (25.19)	74 (37.00)	II
Vodafone	24 (34.78)	25 (19.08)	49 (24.50)	V
Jio	52 (75.36)	117 (89.31)	169 (84.50)	I
Tata Docomo	11 (15.94)	18 (13.74)	29 (14.50)	VI
Videocon	07 (10.14)	15 (11.45)	23 (11.50)	VII

Note: UG- Under-Graduate, PG-Post-Graduate, OA- Overall, F-Frequency.
Data are based on multiple responses.

by in range of 'Rs. 8001-10000' (19.00%), 'Rs. 5001 - 8000' (12.50%), 'Rs. 3001-5000' (09.50%) and 'up to Rs. 3000' (08.50%). This trend might be due to the fact that most of the students availed university merit scholarship and families had their annual income in range of more than Rs.4, 00,000 per annum. Regarding network services of mobile, a great majority of the respondents (84.50%) used 'Jio' network services, followed by 'Idea' (37.00%), 'Airtel' (32.50%), 'BSNL' (28.50%), 'Vodafone' (24.50%), 'Tata Docomo' (14.50%) and 'Videocon' (11.50%). According to Canalys Research Agency (2020), Xiaomi's popularity is incredibly high in India due to its high cost-to-performance smartphone models as the company was able to maintain its top position in 2019 with an annual growth of 5% and a market share of 29%. However, Reliance Jio continues to remain the fastest mobile network in India with an average download speed of 19.3 megabit per second (mbps) in September, 2020 (TRAI, 2020).

Frequency and extent of time spent for using mobile

All the respondents used mobile 'daily' for various purposes viz., disseminating information, education and entertainment (Table 3). More than two-third of the respondents (72.50%) spent 'more than 4 h per day' for using mobile, followed by '3-4 h per day' (13.00%), '2-3 h per day' (10.50%) and '1-2 h per day' (04.00). Interestingly, there was not a single respondent who spent 'up to 1 h per day'. With regard to percentage time devoted to internet usage on mobile on daily basis, approximately half of the respondents (49.50%) were of the view that they devoted 51-75% of their daily mobile usage time in using internet, followed by 76-100% (20.50%), 26-50% (18.50%) and 00-25% (11.50%). 'Daily' use of mobile by students may be associated to the fact that in recent time mobile has become a central arena for students for interpersonal communication, information needs, and social needs and entertainment

Table 3: Frequency and extent of time spent for using mobile (n= 200)

Particulars	Students			Rank order
	UG (n=69) F (%)	PG (n=131) F (%)	OA (n=200) F (%)	
Frequency of using mobile				
Daily	69 (100.00)	131 (100.00)	200 (100.00)	I
3-4 days in a week	00 (00.00)	00 (00.00)	00 (00.00)	II
1-2 days in a week	00 (00.00)	00 (00.00)	00 (00.00)	II
Rarely	00 (00.00)	00 (00.00)	00 (00.00)	II
Extent of time spent daily				
0-1h/day	00 (00.00)	00 (00.00)	00 (00.00)	V
1-2 h/day	02 (02.89)	06 (04.58)	08 (04.00)	IV
2-3 h/day	09 (13.04)	12 (09.16)	21 (10.50)	II
3-4 h/day	08 (11.59)	18 (13.74)	26 (13.00)	III
>4 h/day	50 (72.46)	95 (72.51)	145 (72.50)	I
Percentage time devoted to internet usage on mobile daily				
00-25	06 (08.69)	17 (12.97)	23 (11.50)	III
26-50	08 (11.59)	29 (22.13)	37 (18.50)	II
51-75	33 (47.80)	66 (50.38)	99 (49.50)	I
76-100	08 (11.59)	33 (25.19)	41 (20.50)	IV

Note: UG- Under-Graduate, PG-Post-Graduate, OA- Overall, F-Frequency.

needs. Haryana State Agriculture Policy (2019) also highlights increased use of IT by the agri-expert/professional will assist especially youth and women in the field of Information Technology (IT), Intellectual Property Rights (IPR) and computer science with highlighting on areas such as post-harvest technology, agro-meteorology, environmental science, bio-technology and nano-technology, etc.

Frequently visited mobile apps

From the Table 4 it is apparent that majority of the respondents used mobile to browse ‘social networking apps’ followed by entertainment apps, educational apps, competitive apps, video-conferencing apps, financial apps, online shopping apps, ICAR apps and agricultural apps, respectively. Frequent use of ‘social networking apps’ (Facebook, WhatsApp, Instagram, etc.) by the students may be attributed to the fact that these apps helped in keeping contact with friends, relatives, family, classmates and more over now-a-days most of the news spread through these apps faster than any other means. Kay and Lauricella (2019) revealed that different mobile apps provide support and contribute to overall academic success of the students by helping them stay focused, organized and be more efficient. Moreover, in times of COVID pandemic, apps like WhatsApp group, Zoom, Microsoft team, YouTube etc. not only provide access to the study material but also allow them to engage in online classes and interact with the teachers like the

physical classroom setting. Similarly, Malik (2019) reported that mobile apps also provide easy access to various e-resources i.e. Scopus, Elsevier, CeRa, etc. which are used by the academic students to retrieve information regarding research, publishing papers, assignments, presentations, seminars and to update their knowledge. Contrary to this, Pandey *et al.* (2020) reported that wastage of time in irrelevant activities and health related issues were perceived as major negative consequences of social media by the students. Therefore, one has to guard against the ill effects of social networking apps that lead to distraction, wastage of time and poor health.

Usage behavior of mobile

The data presented in Table 5 depicts that majority of the students used mobile for entertainment purpose with average weighted mean score 1.36. This was followed by communication and interaction, information organization and sharing, self and course-based learning, accessing academic material and for information searching purposes, respectively. It reflected that most of the students used the mobile phones for entertainment and communication purposes as compared to academic and information searching purposes. However, students who spend long hours on mobile for entertainment and social purposes have the potential to affect their academic performances, as it makes them feel tired, difficulty in waking up, increase in missed classes, and

Table 4: Frequently visited mobile apps (n=200)

Items	Weighted mean score	Utilization (%)	Rank order
ICAR apps (e-mausam, Kisaan, Kisan Sahayak, etc.)	0.52	18.16	VIII
Entertainment apps (Youtube, Netflix, Hotstar, PUBG, etc.)	1.31	44.67	II
Agricultural information apps (e-Nam, IFFCO, etc.)	0.35	11.67	IX
Educational apps (manage, unacademy, UGC, B.Sc. Agri. Notes, etc.)	1.07	35.67	III
Social networking apps (Facebook, WhatsApp, Instagram, etc.)	1.65	55.00	I
Video-conferencing apps (AgMOOCs, Zoom, Google meet, etc.)	0.66	22.17	V
Online shopping apps (Flipkart, Amazon, Snapdeal, etc.)	0.53	17.83	VII
Competitive Apps (UPSC, SSC, IBPS, IARI Toppers, etc.)	0.92	30.67	IV
Financial apps (Google pay, Phonepe, etc.)	0.55	18.34	VI

Note: Scale: 0 = Never, 1 = Occasionally, 2 = Frequently

Table 5: Usage behavior of mobile (n=200)

Purpose	Weighted mean score	Average weighted mean score	Utilization (%)
Communication and interaction			
Instant messaging (e.g., via WhatsApp, SMS, etc.)	1.15	1.19	40.00
Checking and/or sending e-mails	0.78		
Social networking and knowledge sharing (e.g., Facebook, Instagram, Twitter, etc.)	1.66		
Accessing academic materials			
Accessing internet to find lecturers notes,reference readings, etc.	0.43	0.54	18.00
Reading academic content (e.g., e-books, e- journals)	0.65		
Entertainment			
Play music or MP3 films	1.66	1.36	45.50
Record and play videos	1.34		
Playing games (e.g. PUBG, Temple run, etc.)	1.29		
Download songs, videos and ringtones	1.16		
Information organization and sharing			
Storing learning content online (e.g., uploading on Dropbox, YouTube)	1.34	1.12	37.34
Online sharing and synchronized editing (e.g., Google drive)	0.90		
Self and course-based learning			
Checking dictionary	0.28	0.72	24.16
Completing coursework or participating in lectures (e.g., online discussion)	0.63		
Notes taking	1.04		
Submitting assignment	1.16		
Searching literatures via library's electronic databases	0.36		
Collecting data (e.g. via. Google form, etc.)	0.86		
Information searching			
Using the university's campus website (e.g., University Portal)	0.40	0.34	11.50
Reading other content (e.g., newspapers, blogs)	0.28		

Note: Scale: 0 = Never, 1 = Occasionally, 2 = Frequently

being late for classes (Gupta *et al.*, 2016). Similarly, Kubey *et al.* (2011) observed that many college students may be sacrificing their academic position, emotional and physical health, and other aspects of life only to ensure that they do not miss a call, text message, or social networking post. Indeed, administration at the university need to strive to create awareness among students regarding efficient, safe, purposeful usage and negative effects of mobile phones on health and environment through organizing trainings, seminars, exhibitions, conferences, etc.

CONCLUSION

The results of the study indicated that all the students used the mobile daily for more than 4 h. Most of students used Xiaomi/MI mobile phones with Jio network services for entertainment and communication purposes compared to academic and professional purpose. To create awareness among students regarding efficient, safe, purposeful usage and negative effects of mobile phones on health and environment through organizing trainings, seminars, exhibitions, conferences, etc. are the key issues. Teachers may be involved to orient on the

use of mobile phones especially for information to maximize their use as an aid to learning processes. Students should be encouraged to limit the time they spend on their social media sites per day and advise them to rather substitute those hours to read novels to improve their knowledge. Teachers should take advantage of students' extensive use and experience of specific ICT tools such as mobile phones and social networking sites i.e. WhatsApp, YouTube, Instagram, etc. in their personal and social lives by formally integrating these ICTs in students' learning, particularly given the increasing evidence of the pedagogical value of these technologies and their positive influence on learning activities. In addition, a well structured and sound national level policy for students related to pricing, infrastructure facilities, availability of high quality smart phones, tablets and Personal Digital Assistants (PDAs) at subsidized rates, free and regular training programmes, scholarships, etc. will definitely help to aware students about safe, responsible and healthy use of mobile and stimulate interest among them for its optimum academic and professional use.

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