

Accessibility of Colleges' ICT Resources and Personal ICT Resources Possessed by College Students in Mizoram in terms of Stream of Studies

Vanlalruati*
LalhmasaiChuaungo**

Abstract

The present study aimed at exploring the accessibility of colleges' ICT resources for college students in Mizoram and personal ICT resources possessed by the students in terms of stream of studies. Initially, 18 colleges out of the 27 general colleges offering arts and/or science and/or commerce in the state of Mizoram were randomly selected. Students from arts, science and commerce streams were again randomly selected to represent different streams of studies. Thus, the sample consisted of 1085 students comprising of 525 arts, 285 science and 275 commerce students. Data were collected through questionnaire prepared for this study. The findings revealed that most of the ICT resources available in the colleges were accessible to the students. The percentages of students reporting the accessibility of various ICT resources were highest among science students, followed by arts students and then by commerce students. While majority of college students in Mizoram had cell phone as personal ICT resource, majority of them did not have important personal ICT resources such as desktop computer, laptop computer, and printer. The percentages of students reporting their possession of personal ICT resources was highest among science students.

Keywords: *ICT resources, Accessibility, College students, Stream of studies*

Introduction

The most striking invention in the field of education is the integration of ICT in education. The educational institutions should cope with the suddenly increasing demand for information and skills. The learner is not just dependent on the internet for formal interaction with the advent of information and communication technology. A learner living in anywhere can pay fees through online and can access any course of interest through internet. Education has benefitted from technology on many different levels and in different ways. Many educational institutions in the developed countries are offering courses through technologies. It is essential

*Vanlalruati, Research Scholar, Department of Education, Mizoram University. Email: vlalruati@gmail.com

**Prof. Lalhmasai Chuaungo, Senior Professor & Dean, School of Education, Mizoram University. Email: lalhmasai.c@gmail.com

to integrate technological improvements in the Indian classroom in order to keep up with the technological revolution in the teaching-learning process of industrialised countries (Arulsamy, 2014). The advent of new technologies and expansion of knowledge has opened up new outlooks for teaching and learning (Mrunalini & Ramakrishna, 2016).

Students today are becoming digital migrants due to the rapid pace of learning and the availability of technologically based opportunities. If we teach today the same way we taught yesterday, we are not preparing students for today or tomorrow, as they have progressed from 'know what' learning to 'know how' and 'know where' learning (Bhatia, 2011).

National Education Policy 2020 a revolutionary and far reaching education policy in the country gives emphasis, among many others, on integration of ICT with education.

Review of Related Studies

Fanai (2014) investigated the use of ICT among IGNOU B.Ed students. She found that 92%-100% of them owned a mobile phone and a television, and the percentage of teachers who used a computer was also very high (80%-98%). Teachers who used ICT in the classroom percentage were extremely low. The main cause for not using computers in the classroom was due to lack of computer resources.

Lu, Tsai and Wu (2015) studied the role of ICT infrastructure and its application in Chinese middle and primary schools classrooms. They found that ICT infrastructure influenced schools in urban and rural areas. The role of ICT infrastructure in city schools was found 'utilisation of multi-media classrooms' and thus its role in city schools should be reinterpreted.

Sawant (2015) found that traditional approaches and methods of teaching - learning and evaluation have undergone transformation in the use of ICT tools (such as online smartboard, projector, laptop, android system, Pcs, online lecture, tablet, cellular phone, e-readers, web resources, software and hardware devices). There has been a significant increase in the use of ICT tools and resources.

Chuaungo (2017) investigated usage of ICT among B.Ed students and teachers of IASE in Mizoram. Findings are:

- a. 50 per cent of B.Ed students reported that their teachers used power point presentations frequently in classroom, while only 40 per cent of teachers reported the same.
- b. Twenty-seven per cent of students were uncomfortable with teachers' use of ICT.
- c. Aside from the ICT teacher, no other teacher provided students with specific instruction preparation and use of power point presentation.
- d. The students' ICT skills and confidence were only limited and minimally developed.
- e. Majority of the students can demonstrate their ICT skills during practical.
- f. Whatsapp messenger was the online communication tool of choice for the vast majority of teachers.
- g. Inadequate facilities and equipment, irregular internet access, and insufficient number of ICT experts in the institution were barriers to ICT use by the teachers.

Siddiquah and Salim (2017) surveyed 'the ICT facilities, skills, usage, and the problems faced by the students of higher education' of Lahore, Pakistan. The findings show that the students have computers and internet facilities at home and universities. They are expert at simple software skills and spend more time on computers for recreational and other purposes than academic purpose. They believe that the use of ICT supports their learning. The problems faced by the majority of the students were:

- a. Slow speed of computers
- b. signal problem in Internet
- c. virus threat
- d. poor working condition of computers
- e. load shedding
- f. lack of access of Internet

The findings concluded that universities should pay more attention on infrastructure improvement addressing the ICT related problems of students.

Harrell and Bynum (2018) discussed technology as an integral part of our daily lives in their paper factors affecting technology integration in the classroom. Although many technological devices are available in classrooms, several external and internal factors like poor infrastructure, lack of network bandwidth and inadequacy of devices influence implementation of technology in classrooms. Teachers became discouraged and abandon in fully integrating technology.

Kumara and Kumar (2018) examined the digital divide between rural and urban students of 64 high schools. The findings are as follows:

- a. 20.66 per cent of rural students used computers while 69.70 per cent of urban students used computers for academic purposes.
- b. Students faced "frequent electric power failure" while using computers.
- c. Most students depend largely on their teachers to learn computer.
- d. Only 6.25% of rural schools had permanent computer teachers.
- e. Majority of urban schools (96.87%) had computer teachers.

According to the studies mentioned above, only a few studies on ICT resources have been undertaken in various nations and this particular field has not been adequately explored, the current study was undertaken in an attempt to fill this research gap.

Rationale of the Study

Students today are becoming digital migrants due to the rapid pace of learning and the availability of technologically based opportunities. If we teach today the same way we taught yesterday, we are not preparing students for today or tomorrow, as they have progressed from "know what" learning to "know how" and "know where" learning (Bhatia, 2011).

Incorporating technology into education can help bring quality education to everyone and everywhere, which is a key goal of the education for all initiative. Future citizens must

be equipped with sufficient knowledge to keep up with technological advances and 21st-century demands. According to UNESCO, recognising innovative ICT in education practises can encourage and enhance even more educational innovations (UNESCO, 2009).

The history of the growth and evolution of educational technology, as well as the inventions and advances in the fields of printing technology, communication and information technology, as well as hardware and software technology linked with the history of technological progress and its impact in the field of education (Mangal&Mangal, 2009). Education has benefitted technology on many different levels and in different ways. Many educational institutions in the developed countries are offering courses through technologies. It is essential to integrate technological improvements in the Indian classroom in order to keep up with the technological revolution in the teaching-learning process of industrialised countries (Arulsamy, 2014). The advent of new technologies and expansion of knowledge have opened up new vistas for teaching and learning (Mrunalini& Ramakrishna, 2016).

Statement of the Problem

The problem of the present study is thus stated as “Accessibility of Colleges’ ICT Resources and Personal ICT Resources Possessed by College Students in Mizoram in terms of Stream of Studies

Operational Definitions of Key Terms Used

The key terms used in the title of the present study are operationally defined as follow:

College: The term ‘college’ in the present study refers to a college offering general courses such as arts, science and commerce

ICT: In the present study, ICT stands for technological tools that provide the instruments of teaching-learning and refers to digital infrastructure employed in the form of application.

Accessibility: Accessibility in the present study concerned about the usability of ICT resources availability in the college

ICT Resources: ICT resources refer to ICT tools/devices that aid and support teaching and learning.

Objectives of the Study

1. To study the accessibility of colleges’ ICT resources for students
2. To explore personal ICT resources possessed by college students

Delimitation of the Study

The present study was delimited to colleges in Mizoram offering general courses of study such as arts, science and commerce.

Methodology of the Study

Research approach: The present study adopted a descriptive method. For analysis of data collected for the present study, both qualitative and quantitative approaches were followed.

Population and Sample: All the general colleges in Mizoram offering arts, science and commerce subjects formed population of the present study. Out of the 27 colleges which formed the population, 18 general colleges in the state were selected as sample colleges through multi-stage sampling technique. Thus, a sample of 1085 students comprising of 525 arts, 285 science and 275 commerce students finally constituted the sample of students were selected by following simple random sampling method.

Tools used: Questionnaire for students constructed by the investigators for studying accessibility of college's ICT resources and personal ICT resources possessed used for the present study.

Statistical Treatment of Data: For quantitative analysis, simple statistical techniques such as frequencies and percentages were applied.

Analysis and Interpretation of data

Data collected through the tools mentioned above were analysed and interpreted as follow:

Table 1: Students' Accessibility of Colleges' ICT Resources

Sl.No	College's ICT Resources	No. of students who say 'Yes' N=1085	Arts N=525	Science N=285	Commerce N=275
1	Interactive Whiteboard/ Smart board	127(11.7)	64(12.2)	33(11.6)	30(10.9)
2	Projector (Multi media, Slide)	262(24.1)	123(23.4)	85(29.8)	54(19.6)
3	Televisions	310(28.6)	146(27.8)	85(29.8)	79(28.7)
4	Printer	346(31.9)	155(29.5)	106(37.2)	85(30.9)
5	Photocopier	789(72.7)	427(81.3)	174(61.1)	188(68.4)
6	Scanner	218(20.1)	78(14.9)	83(29.1)	57(20.7)
7	Laptop Computer	188(17.3)	68(13.0)	57(20.0)	63(22.9)
8	Desktop Computer	250(23.0)	119(22.7)	71(24.9)	60(21.8)
9	Microphone	371(34.2)	171(32.6)	102(35.8)	98(35.6)
10	Voice Amplifier	316(29.1)	174(33.1)	67(23.5)	75(27.3)
11	E-Resource centre	765(70.5)	395(75.2)	172(60.4)	198(72.0)
12	Computerised Library	633(58.3)	315(60.0)	179(62.8)	139(50.5)
13	ICT Classrooms/ E-classrooms	788(72.6)	402(76.6)	200(70.2)	186(67.6)
14	Wi-fi in the Campus	629(58.0)	322(61.3)	152(53.3)	156(56.4)

Figures in the parentheses indicate percentages

Table 1 reveals the extent to which colleges' ICT resources are accessible to the students.

- a) Interactive white board/ smart board are accessible to only 11.7 per cent of college students in Mizoram. The percentage of students of different streams of study who say that smart boards are accessible to them is highest among arts students (12.2%), followed by science students (11.6%) and then by commerce students (10.9%).
- b) While projectors are available in cent per cent of the colleges, 24.1 per cent of the students report that they can access projectors of their colleges. The percentage of the students reporting so is largest among science students (29.8%), second largest among arts students (23.4%) and least among commerce students (19.6%).
- c) Televisions are accessible to students as reported by 28.6 per cent of the students.
- d) Printer is accessible to many students (31.9%) of the colleges in Mizoram. Science students constitute the largest percentage (37.2) followed by commerce students (30.9) and then by arts students (29.5).
- e) Large majority (72.7%) of the college students can get access to photocopier of their college. Among students of different streams of study, arts students constitute the largest percentage seconded by commerce students while science students constitute the least percentage.
- f) As many as 20.1 per cent of students report the accessibility of college scanner to them for learning purpose.
- g) Only 17.3 per cent of students report the accessibility of college laptop computer to them for learning purpose. Whereas 22.9 per cent of commerce and 20 per cent of science students report so, as many as 13 per cent of arts students do not say so.
- h) As many as (23.0%) students can get access to their college desktop computers. While the percentage of students saying so is 29.1 per cent and 20.7 per cent in the case of science and commerce students respectively, it is only 13 per cent in the case of arts students.
- i) Microphones are accessible to students as reported by 34.2 per cent of the students. Equal percentage of science and commerce students reporting in microphone, smallest among arts students.
- j) Voice amplifier are claimed to be accessible by 32.6 per cent of the students.
- k) E-resource centres are accessible to students as reported by 70.5 per cent of the students. The largest percentage of the students who report so is constituted by arts students (75.2%) followed by commerce students (72%) and then by science students (60.4%).
- l) Computerized library is reported to be accessible by only 58.3 per cent of the students which may mean that many students do not visit and use the library. The percentage of the teachers reporting the accessibility is highest among science students, second highest among arts students and lowest among commerce students.

- m) Large majority of the students (72.6%) report that they get access to ICT classrooms/ E-classrooms as rest of the students are from those colleges not having ICT classrooms. The largest percentage of students having access to ICT classrooms are constituted by arts students, second largest percentage by science students and smallest percentage by commerce students.
- n) College students in Mizoram (58.0%) can access wi-fi provided in the campuses. Arts students constitute the largest percentage of the students reporting so followed by commerce students and then by science students.

Table 2: Personal ICT Resources Possessed by Students

Sl.No	Personal ICT Resources	Possession Total N=1085	Arts N=525	Science N=285	Commerce N=275
1	Desktop Computer	342(31.5)	140(26.7)	109(38.2)	93(33.8)
2	Laptop Computer	262(24.1)	123(23.4)	85(29.8)	54(19.6)
3	Tablet	323(29.8)	116(22.1)	113(39.6)	94(34.2)
4	Printer	296(27.3)	98(18.7)	111(38.9)	87(31.6)
5	Cell Phone	892(82.2)	426(81.1)	238(83.5)	228(82.9)
6	Scanner	547(50.4)	261(49.7)	141(49.5)	145(52.7)
7	Wifi/ Internet Access	388(35.8)	177(33.7)	122(42.8)	89(32.4)

Figures in the parentheses indicate percentages

Table 2 reveals that:

- a) As low as college students in Mizoram (31.5%) possess desktop computer. Science students with 38.2 per cent having the facility are best in this regard followed by commerce students with 33.8 per cent of them having the facility. Only 23.4 per cent of arts students have personal desktop computer.
- b) As low as 24.1 per cent of college students have personal laptop computer leaving as many as 75.9 per cent without the facility. The percentage of students having this facility is 29.8 among science students, 23.4 among arts students and as low as 19.6 among commerce students.
- c) As many as 29.8 per cent of college students in Mizoram have their own tablet. Science students are best in this regard followed by arts and then by commerce students.
- d) Many college students in Mizoram (27.3%) have their own printer. The percentage of students having printer is highest among science students (38.9%), second highest among arts students (22.1%) and lowest among commerce students (19.6%).
- e) Large majority of college students in Mizoram (82.2%) have cell phone for themselves. Science students stand first with 83.5 per cent of them, seconded by commerce students with 82.9 per cent, followed by arts students with 81.1 per cent of them possessing this facility.

- f) College students (50.4%) have their own scanner. Commerce students are best in this regard with 52.7 per cent of them possessing the facility followed by arts students with 49.7 per cent and then by science students with 49.5 per cent of them having scanner.
- g) College students in Mizoram (35.8 %) have their ownwifi/ internet access. Science students (42.8 %) are best in this regard followed by arts and then by commerce students.

Major Findings and Conclusions

1. Most of the ICT resources available in the colleges were accessible to the students. The percentages of students reporting the accessibility of various ICT resources were highest among sciencestudents, followed by arts students and then by commerce students.
2. Majority of college students in Mizoram had personal ICT resources i.e. Cell phone.
3. Many college students have scanner this may be due to larger number of students have cell phones supported scanner of their own.
4. Majority of college students did not have personal ICT resources such as desktop computer, laptop computer, and printer. The percentages of students reporting personal ICT resources possessed is highest among science students.

Suggestions for Improvement of ICT Resources in Colleges of Mizoram

1. Colleges in Mizoram should be equipped with modern ICT facilities to strengthen and improve teaching-learning process as it is now almost impossible to have good and effective education without ICT resources in this age of technology.
2. Colleges should give more efforts to have interactive white board/ smart board, ICT enabled classrooms and other facilities to facilitate smart class. Not all houses have computers and Internet facilities to use daily. In this regard, the
3. Main challenge is to provide appropriate ICT tools to colleges in Mizoram. In future studies more focus should be given on management strategies and policies to address the barriers faced by students in using ICT resources in learning.
4. More studies done with the gender could give more appropriate analysis whereby the gender perceptions could be analyzed.
5. Evaluation studies on ICT effectiveness among the students.
6. The colleges should invest more on improving the infrastructure to address the ICT related problems of students.

Conclusion

ICT may be used for different purposes like study assignments, seeking information for study materials, making friends, recreational activities and shopping in today's world. Students use the internet for communication, research, and entertainment. Colleges can create incentives

for uses of ICT resources in education, for making software and hardware more affordable and relevant for students. There are multiple issues and challenges confronting the integration of ICT in educational institutions. Rural areas usually face problems with respect to the availability of ICT related resources such as supporting infrastructure, uninterrupted electricity, projectors, scanners, smart boards, lack of internet and so on. Despite being an integral component of the ICT, internet is lacking in most rural areas. ICT will be the next instructor apart from the traditional classroom interaction. It will help in no small way in bringing knowledge to the doorstep of the learner and make us compete at the world level.

References

- Arulsamy, S. (2014). *Educational innovations and management*. p.164. Neelkamal Publications Pvt.Ltd.
- Bhatia, R. (2011, August 01-07). Enhancing teaching: Learning with technology. *University News*, 49,(31). Chuaungo, L. (2017). Use of ICT for education among B.Ed students and teachers in Mizoram. In L. Mishra. (Ed), *Teacher education in India: Issues and concerns*, (pp 1-10). Cambridge Scholars Publishing.
- Fanai, L. (2014). *A study of the usage of ICT among the B.Ed students of IGNOU*. Unpublished M.A (psychology) dissertation, IGNOU.
- Harrell, S. & Bynum, Y. (2018, August). Factors affecting technology integration in the classroom. *Alabama Journal of Educational Leadership*, 5, 12-18.
- Kumara, S.U.S., & Kumar, B.T.S. (2018, July). The digital divide among the rural and urban students: An exploration. *South Asian Journal of Participative Development*, 18(2). https://www.researchgate.net/publication/329842097_The_Digital_Divide_among_the_Rural_and_Urban_Students_An_Exploration.
- Lu, C., Tsai, C.-C., & Wu, D. (2015). The role of ICT infrastructure in its application to classrooms: A large scale survey for middle and primary schools in China. *Educational Technology & Society*, 18(2), 249–261. <https://www.jstor.org/stable/10.2307/jeductechsoci.18.2.249>.
- Ministry of Human Resource Development. Government of India. (2020). *National education policy, 2020*.
- Mizoram University (2023, Feb., 7). *Mizoram University Examinations Department Result Book UG I, III, V Semester*
- Mrunalini, T. & Ramakrishna, A. (2016). *Information and communication technology (ICT) in education*. pp.1. Neelkamal Publications Pvt.Ltd.
- Sawant, D. G. (2015, January). *Use of ICT in teaching, learning and evaluation*. (Paper presented at National Seminar on New approaches for college accreditation at ShriShivaji College, Parbhani). https://www.researchgate.net/publication/271644313_Use_of_ICT_in_Teaching_Learning_and_Evaluation
- Siddiquah ,A., & Salim , Z. (July 2017). The ICT facilities, skills, usage, and the problems faced by the students of Higher Education. *EURASIA Journal of Mathematics Science and Technology Education*. DOI: 10.12973/eurasia.2017.00977a.