Chapter IV

ANALYSIS AND INTERPRETATION

Analysis followed by interpretation is to be done according to the objectives of the study. Following are the objectives of the present study-

1. To assess the awareness of teachers towards using ICT in the classroom.
2. To identify the difficulties of implementing ICT in the classroom.
3. To identify the causes of difficulties in implementing ICT by teachers.
4. To find out the suggestive measures for overcoming the difficulties of implementing ICT.

4.1 ANALYSIS AND INTERPRETATIONS

The study found that the ground-level situation is not so satisfactory for implementing ICT in govt. state board schools (sample taken). It is found that there are various factors involved that become hurdles to implementing ICT. But on the other aspect, it is also found that these hurdles can be overcome by some positive effort and wiliness at the individual and collective level.

Objective 1: To assess the awareness of teachers toward using ICT in the classroom

Following questions were asked to assess their awareness level of ICT

Table 4.1

Q.1 Do you use internet/social networking (WhatsApp group, google class, google meet, email, links, YouTube, google drive) for interacting with your students?		
Response	**Frequency (Out of 30)**	**Percentage**
YES	28/30	93.33%
NO	02/30	06.67

Almost all teachers (93.33%) use the internet or social networking sites and they said that operating through a smartphone is easier because of its features like audio input, google lens, etc.

Table 4.2

Q.2 For how many years have you been using a computer or internet at school?				
Less than one year	Two to four years	Four to six years	More than six years	Nil
11.11%	55.55%	11.11%	00	22.22%

Despite the internet having been a part of the executive system teachers started the excess of the internet after the smartphone boom and easy excess of internet through a smartphone. Before that their frequency of using the internet was very less. More than half of (55.55%) the teachers just started the use of the internet for 2-4 years only.

Table 4.3

Q.3 How often do you use ICT in your class in a week?		
Response	**Frequency**	**Percentage**
Nil	17	56.67%
Ones	13	43.33%
Twice	00	00
Thrice	00	00
More than thrice	00	00

The frequency of accessing ICT in sample schools at the upper primary level is very less.

Table 4.4

Q.4 Do you use computers/the internet for the following activities?				
Preparing Lesson Plan	YES	56.33%	NO	43.67%
Class teaching with the computer (smart board)/internet	YES	23.33%	NO	76.67%

Teachers only surf the internet (56.33%) when they need information about a specific topic or find it difficult to teach it to students. Due to a lack of smartboard, they cannot (76.67%) take the class with ICT support.

Table 4.5

Q.5 Is ICT helpful in conducting practicals? (* 4= 13.33% Not Answered)		
Response	Frequency (Out of 30)	Percentage
Strongly agree	03	10%
Agree	20	66.67%
Neutral	00	00
Disagree	00	00
Strongly disagree	03	23.33%

Despite do not have hands-on experiments in ICT most teachers accept that ICT is useful in conducting practicals (10%+66.67=76.67) because it is helpful up to a certain extent to demonstrate practicals as compared to explaining on green board or orally impart about practicals. Teachers believe that at least students can visualize those practicals originally as compared to printed forms in the textbook

Table 4.6

Q.6 To what extent you are confident in the following? * (33.33% Not answered)				
Activity	None	A little	Somewhat	A lot
Prepare MS word file	11.11%	22.22%	11.11%	22.22%
Use Email/ internet sources to communicate	00	00	11.11%	55.55%
Prepare study material by exploring the internet	00	11.11%	22.22%	33.33%
Create google form	00	11.11%	22.22%	33.33%
Email a file to someone	00	22.22%	00	44.44%
Organize computer files folder and subfolders	00	11.11%	00	55.55%
Make a PowerPoint presentation	11.11%	22.22%	11.11%	22.22%
Download and install software on a computer	11.11%	22.22%	00	33.33%

Due to different reasons 33.33% of teachers not answered these questions. These all teachers belong to the 51-60 age group.

Most of the teachers have familiar with computer software and they can operate these at different competency levels but not too many negative replies come except the teacher belong to the 51-60 age group with exceptions in this category also.

Table 4.7

Q.7 Is your teaching more effective without using ICT?		
Response	**Frequency (Out of 30)**	**Percentage**
Strongly agree	03	10%
Agree	10	33.33%
Neutral	03	10%
Disagree	14	46.67%
Strongly disagree	00	00

46.67% of the teachers accept that ICT makes teaching more effective and most of the topics can teach through it and are always helpful in another aspect of the teaching-learning process in the school environment.

Table 4.8

Q.8 Do you hesitate to use ICT in the classroom because nowadays students are more competent in ICT as compared to teachers?		
Response	**Frequency (Out of 30)**	**Percentage**
Strongly agree	00	00
Agree	07	23.33%
Neutral	00	00
Disagree	23	76.67
Strongly disagree	00	00

Teachers accept that new generation children have good knowledge of technology even they agree on that they are more techno-friendly than them and teachers also have a positive attitude towards this. 76.67% of teachers do not have hesitation about that, and only 33% feel hesitation in front of students.

Table 4.9

Q.9 How much you are comfortable with teaching through ICT? (Marks out of 10)		
Response (Score out of 10)	**Frequency (Out of 30)**	**Percentage**
1	00	00
2	00	00
3	00	00
4	00	00
5	03	10%
6	07	23.33%
7	03	10%
8	10	33.33%
9	00	00
10	07	23.33%

No one gave themselves below 5 marks for teaching through ICT. Teachers (100%) insist that if proper training is given to them, the performance level of use of ICT will increase.

Objective 2: To identify the difficulties of ICT in the classroom

There are various factors involved that become hurdles to implementing an ICT classroom. In this study some major factors were found as:

Table 4.10

Q.10 Availability of smart Board/internet in your school?		
Response	**Frequency**	**Percentage**
YES	20	***66.67%***
NO	10	33.33%

I. Lack of resources (100%), especially smart-board and other resources like internet facility, number of computers, etc.

II. ***Only one Smartboard**** is available in 66.67% of schools but it is not sufficient for all students to excess. And still, 33.33% of schools do not have even a single smartboard.

Table 4.11

Q.11 Are technical problems that make you uncomfortable with ICT (settings, malfunctions, software, and hardware problem)?		
Response	**Frequency**	**Percentage**
None	03	10%
A little	17	56.67%
Somewhat	07	23.33%
A lot	03	10%

I. Technical problem is the most common problem $\{a\ little(56.67\%) + somewhat(23.33\%)a\ lot(10\%)\}$ during the execution of ICT.

II. Teachers feel that there should be training programs from time to time for enhancing their capacity to use ICT according to the current situation. This study based on word base analysis of interviews found that training was the third most frequent word spoken during the interviews without asking the researcher after complaining about lack of resources and technical support (expert) respectively.

Table 4.12

Q. 12 Who provides ICT support at your school? You can choose one or more options. (*6=20% Not answered)		
Response	**Frequency**	**Percentage**
A more experienced/Knowledgeable teacher	07	23.33%
School ICT/technology coordinator	03	10%
Other school staff	00	00
The expert from outside the school	07	23.33%
Online helpdesk/community or website	07	23.33%

Not answered because there was no ICT support system like a smart board, computing lab, etc.

Requirement of expert and support- During the use of ICT many technical and functional or operating problems has to be faced, 100% (***Table 4.16****)* teachers accept that technical

problem bothers them at the time of teaching through ICT. For resolving these problems an expert should be there to provide support in case of any malfunction.

Table 4.13

Q.13 The average number of students per class.			
20-25	**25-30**	**30-35**	**35-40+**
22.22%	11.11%	44.44%	22.22%

Strength of school (student and resource ratio)- With a lack of resources it is not possible to benefit all the students with ICT. This study found that these schools have only one smart board or do not have a single and schools have classes with multiple sections.

Objective 3: To identify the causes of difficulties in implementing ICT by teachers

Causes of the implementation of n ICT are interrelated with its difficulties or we can say that both are supplementary to each other rather we can say that both are the same at Achieving the point of view of our objectives.

1. **Budget-** Those schools have a smart board, which is sponsored by a private service provider. Schools do not get financial support from govt. and the school-level income (शाला विकास समिति) is not sufficient to afford the installation of an ICT system in their school.

   Table 4.14

Age Group	Number Of Teachers	Percentage
18-30	00	00
31-40	07	23.33%
41-50	07	23.33%
51-60	16	53.63%

Table 4.15

Teaching Experience	Number Of Teachers	Percentage
0-5	00	00
5-10	03	10%
10-15	07	23.33%
15-20	00	00
20-25	03	10%
25-30	17	56.67%

2. **Age group of Teachers-** In this study, no teacher was found under the age group of 18-30. As we know younger teachers are more techno-friendly than the older generation and most of them in these teachers, are generally not too much familiar with desired knowledge of ICT. This study found that 50% of teachers here belong to the 51-60 age group. When individual data was analyzed, it is found that teacher groups belonging to higher age are not competent with the use of ICT and they accept it themselves that they have hesitation or technophobia (46.67% Table 4.19) to access ICT. Teachers belonging to the younger age group have good or satisfactory knowledge of ICT.

3. **Recruitment-** Due to a lack of recruitment process young teachers who are competent in handling ICT are very less in these schools. From the above table can be seen that the 18-30 age group column is nil (00%). In the recruitment, the process focus is more on traditional subject teachers. At the upper primary level, no IT teachers are there.

4. **Factors that adversely affect the use of ICT in teaching-learning**

Table 4.16

Factor	Not at all	A little	Partially	A lot
Insufficient number of Internet-connected computers	00	22.22%	11.11%	33.33%
Internet speed	11.11%	00	22.22%	33.33%
Insufficient smart board	11.11%	00	33.33%	11.11%
Lack of adequate skills of teacher	11.11%	11.11%	11.11%	33.33%
*Insufficient technical support for teachers**	00	11.11%	11.11%	44.44%
Lack of content in instructional language	00	11.11%	22.22%	33.33%
Too difficult to integrate ICT use into the curriculum	22.22%	22.22%	11.11%	11.11%
Lack of pedagogical models on how to use ICT for learning	11.11%	11.11%	44.44%	00
School time organization (fixed lesson time etc.)	00	22.22%	22.22%	22.22%
School space organization (classroom size and furniture)	33.33%	11.11%	00	22.22%
Pressure to prepare students for exams and texts	00	44.44%	00	22.22%
Most parents are not in favor of the use of ICT at school	11.11%	33.33%	11.11%	11.11%
Most teachers are not in favor of the use of ICT at school	00	22.22%	22.22%	22.22%
Lack of interest of teachers	33.33%	00	11.11%	22.22%
Using ICT in teaching not being a goal in school	33.33%	33.33%	00	00
No or unclear benefit to using ICT for teaching	33.33%	00	22.22%	11.11%

*** Due to different reasons 33.33% of teachers did not answer these questions. These all teachers belong to the 51-60 age group. (Not answered because there was no ICT support system like smart board-computing the lab, they are not too familiar with ICT, etc.)***

I.   **Lack of Resources-** lack of resources is the root cause of implementing ICT in an educational setting which directly affects all the other factors of execution of ICT, the lack of training to operate ICT for teachers is the second most common problem for them.

II.   **Language-** It is well-known fact that English is still a learning hurdle for not only students belonging to the Hindi medium government schools but also for the teachers who got their education from Hindi medium or government school. Most of the authentic learning materials are not available to be in instructional language and the functional language of ICT is also English which hinders them from excess ICT.

III. **No integration with the curriculum-** Like private schools, in Madhya Pradesh state board government schools IT is not taught and practiced as a subject. At the upper

primary level, the textbook of IT (computer) is -not a part of the syllabus for even theoretical knowledge purposes.

Objective 4: To find out the suggestive measures for overcoming the difficulties of implementing ICT

Word-based (text) analysis of Interview Schedule

Table 4.17

Keyword	Frequency
Lack of Resources	11
Technical Support (Expert)	9
Training	8
Betterment (Through ICT)	8
Technical problem	1
Time Management	3
ICT Lab	1
Budget	3
Language	1
Covid Period	1
Awareness	1
Covers All Topics	2
Specially Science	1
Attention Of Students	1
Discipline	1
Strength Of Class	3
Continuous Monitoring (smooth working of gadgets)	1
Practice	2
Integration with curriculum	1
Other school-related work	1
The ratio of students and Resources	1
At least one setup	1

The teacher can teach the different subjects in absence of (subject teacher)	1
Age factor	2
Elementary level	1
Practical	1
Hesitation (Technophobia)	1

    I.   From Time-to-time training programs should be provided to in-service teachers.

    II.   Operating the ICT tool made easy to excess for a common man like mobile phone audio input, and shortcuts. 93.33% (Table 4.1) Teachers use mobile applications like WhatsApp, U-tube, google (group of applications), and social networking sites because these are easy to access.

    III.   ICT should be made a compulsory part of the f curriculum with textbooks.

    IV.   Established ICT labs in schools.

    V.   An expert faculty should be recruited for ICT execution.

    VI.   Teaching should be made the priority for teachers as compared to all other academic formalities.

Other findings of this study-

    I.   A fraction of students studying in these schools or their parents do not have a mobile smartphone for accessing learning through ICT.

Table 4.18

Gender	Number of Teachers	Percentage
Female	26	86.67%
Male	04	13.33%

    II.   In this study it is found most of the teachers in the taken sample are female and students in these schools have a large number of girls students.

Table 4.19

Q.14 Do you have technophobia?

Response	Frequency	Percentage
YES	14	46.67%
NO	16	53.33%

III.   Technophobia is not a problem among the teachers, more than 50% of teachers do not feel that they have technophobia but due to less expertise in handling ICT and technical support like a specialist who helps them during the execution of their work they have some hesitation to use ICT that can be overcome easily by proper training and practice.

Table 4.20

Q.15 Is classroom management a problem for using ICT in teaching Science?			
None	A little	Somewhat	A lot
66.67%	23.33%	00	10%

IV.   Classroom management is not a problem (66.67%) teaching with ICT even though students are more attentive during the class when they learn through ICT.

Table 4.21

Q.16 Does your school allows you to use a smartphone in the classroom?		
Response	**Frequency**	**Percentage**
YES	20	66.67%
NO	10	33.33%

V.   66.67% of teachers said that they are not forbidden from carrying smartphones during the class, and only 33.33% of teachers said that their school does not allow smartphones during the class