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EFFECTIVENESS OF WEB BASED INSTRUCTION ON MATHEMATICS IN TERMS OF REACTION TOWARDS WBI OF CLASS IX STUDENTS

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Abstract

In the new technology era, the role of a teacher is changing continuously from being an instructor to constructor, facilitator, and creator of learning situations. A teacher can integrate the use of ICT into teaching effectively if he has been trained in its use. Thus, there is a need to create facility and arrange training program for the use of ICT. Web Based Instruction is the vital area of research. Researchers are making efforts to design and develop different types and forms of Web Based Instruction Material, which can improve the teaching-learning process. The present study was completed on class IX students of Jawahar Navodaya Vidyalayas of Madhya Pradesh and Chattisgarh. 159 students were selected as sample by using random sampling technique. Using Self developed Reaction Scale developed by the Authors it is found that (i) Web Based Instructional Material on Mathematics was found to be effective in terms of Reaction towards Web Based Instructional Material on Mathematics.

Keywords: Web Based Instruction, Jawahar Navodaya Vidyalaya, Reaction, Web Based Instructional Material, Domain and Web Pages

Introduction

Educational Technology refers to use the principles of Science, Technology, Psychology, Management, Linguistics, and other subjects for achieving the educational objectives. The face of classroom is changing. The teacher should be prepared to make use of technology for the benefit of learners. Educational technology can take many forms in classrooms. It may be in form of teaching aids; like, charts, models, etc. , but it may also be in the form of Information and Communication Technology (ICT). The use of new techniques that involves two way student-teacher interaction, student-student interaction and inter-disciplinary approaches are gradually replacing the one-way information flow that is typical of traditional classrooms where a teacher addresses a group of passive students. Apart from synchronous, face to face instructor-student interaction in a distance based teleconferencing, there is enormous potential for asynchronous interaction between instructor and students via e-mails and electronic publishing (CD-ROM, World Wide Web). In the new technology era, the role of a teacher is changing continuously from being an instructor to constructor, facilitator, and creator of learning situations. A teacher can integrate the use of ICT into teaching effectively if he has been trained in its use.

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Thus, there is a need to create facility and arrange training program for the use of ICT.
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Methodology

The methods adopted in the study are sample, sampling technique, experimental design, tools and data analysis. The population of the study was Class IX students studying in Jawahar Navodaya Vidyalayas of different Schools in India. The present study was Experimental in nature and conducted in eight Jawahar Navodaya Vidyalayas. namely, Jawahar Navodaya Vidyalaya Mana,Raipur (C.G.), Jawahar Navodaya Vidyalaya Padmi, Mandla (M.P), Jawahar Navodaya Vidyalaya Kurud, Dhamtari (C.G.), Jawahar Navodaya Vidyalaya Kanhiwada,Seoni (M.P), Jawahar Navodaya Vidyalaya Shahpur,Dindori (M.P), Jawahar Navodaya Vidyalaya Borai, Durg (C.G.), Jawahar Navodaya Vidyalaya Dongargarh, Rajnandgaon (C.G.). 316 students of class IX of the above-mentioned JNVs of Madhya Pradesh and Chhattisgarh were selected as sample by random sampling technique. 40 students were selected from each school but four students of two schools dropped out during the course of treatment. Finally 159 students from four schools formed experimental group and 157 students from four other schools formed control group. Reaction towards Web Based Instructional Material was assessed from the students of experimental group. 159 subjects from four schools namely, Jawahar Navodaya Vidyalaya Mana, Raipur (C.G.), Jawahar Navodaya Vidyalaya Padmi, Mandla (M.P), Jawahar Navodaya Vidyalaya Kurud, Dhamtari (C.G.) and Jawahar Navodaya Vidyalaya Kanhiwada, Seoni (M.P) were formed Experimental Group. Further, out of 159 students, there were 88 boys and 71 girls. Students were from both urban as well as rural areas and belonged to different castes and different economic status. The medium of instruction in all the four schools was English. The content of Mathematics is same in all the four schools. For assessing Reaction towards Web Based Instruction, the students of experimental group were administered the reaction towards Web Based Instruction scale.
The students Reaction towards Web Based Instruction was assessed with the help of Reaction Scale developed by the investigators. This scale comprises 14 statements, of which 7 statements are positive and remaining negative. The statements are related to different aspects of web based instruction viz.; the content, presentation of the content, characteristics of the Web Based Instruction, the animation, the diagram, font size of the words & numbers and the colour combination, etc. Each statement has a 5-Point Rating Scale against it. These are Strongly Agree (SA), Agree (A), Undecided (U), Disagree (D) and Strongly Disagree (SD). Each student is requested to read the statement and put a tick mark on one of the given five alternatives, which represent the reaction of the students. The students were given free time to give their responses. For positive statements, the weightages, 5,4,3,2,1 were assigned to SA, A, U, D, SD, while for the negative statements weightages assigned to SA, A, U, D, SD were 1,2,3,4,5 respectively.

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Result and Discussion

Reaction towards Web Based Instructional Material on Mathematics was assessed with the help of Reaction Scale developed by the researchers. It contained 14 statements. A five-point scale was given against each statement. Thus, the mean score could range from 1 to 5. If the score lies between 1 and 3, then it indicated that the reaction is not favorable. On the other hand if the score lies between 3 and 5, it indicated a favourable reaction. In this case the mean score of Reaction towards Web Based Instructional Material on Mathematics is 4.08. It lies between 3 and 5 and it is more towards 5. So it reflects that students of Experimental Group had a favourable Reaction towards Web Based Instructional Material on Mathematics. Further, the Standard Deviation is 0.336 and that is too small. It indicates that the whole group had a favourable Reaction towards Web Based Instructional Material on Mathematics. In order to probe into reaction towards Web Based Instructional Material on Mathematics, the data were further analyzed by computing statement-wise Means. The results are given in Table -1.

TABLE NO. 1
REACTION TOWARDS WEB BASED INSTRUCTION OF CLASS IX STUDENTS

S. No.	Statement	Mean
1	The content was presented in both languages Hindi and English, So it was easy to understand.	4.5
2	It is difficult to read in computer.	4.1
3	It is not easy to read in WBI.	3.6
4	Any time it can be read and learnt on WBI , So it became easy.	4.45
5	We can practice again and again with the help of WBI, So we can learn more effectively.	4.3
6	It is inconvenient to read in WBI.	3.9
7	When we face difficulties in reading or learning, We can find solution with the help of WBI .	4.34
8	Colour combination is not attractive.	3.6
9	Animations are used appropriately.	4.1
10	Animation helps in understanding content easily.	4.25
11	It is not interesting in understanding content by animation.	3.81
12	Use of symbols is not appropriate and correct.	3.92
13	Sufficient examples are not given to understand the topic.	3.7
14	Theorems have been easily explained.	4.6
	Overall Mean	4.08
	Standard Deviation	0.336

From above table -1, it is clear that the calculated mean score of reaction towards the statement “The content was presented in both languages Hindi and English, so it was easy to understand” is 4.5 out of 5 and it is very high. It can thus be concluded that the content was presented in both languages Hindi and English, so it was very easy to understand.

From above table -2, it is clear that the calculated mean score of reaction towards the statement “It is difficult to read in computer” is 4.1 out of 5 and it is very high. It can thus be concluded that students didn’t face any difficulty in reading computer.

The calculated mean score of reaction towards the negative statement “It is not easy to read in WBI” is 3.6 out of 5 which is very high. It may, therefore, be said that students learnt easily through WBI.

The calculated mean score of reaction towards the statement “Any time it can be read and learnt on WBI, so it became easy” is 4.45 out of 5 that means most of the students agreed from this statement. It can thus be concluded that students believed that they can learn easily any time any place through WBI.

The calculated mean score of reaction towards the statement “We can practice again and again with the help of WBI, so we can learn

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more effectively" is 4.3 out of 5 that means most of the students agreed with this statement. It can thus be concluded that students believed that they can practice again and again with the help of WBI, so they can learn more effectively.

The calculated mean score of reaction towards the negative statement "It is inconvenient to read in WBI" is 3.9 out of 5 which is very high. It may, therefore, be said that students learnt more conveniently through WBI.

The calculated mean score of reaction towards the negative statement "When we faced difficulties in reading or learning, we can find solution with the help of WBI" is 4.34 out of 5 that means most of the students agreed with above statement. It can thus be concluded that students believed that they can find solutions to their difficulties with the help of WBI.

From above table-2, it is clear that statement "Colour combination is not attractive" is negative. For this statement researcher scored opposite i.e. assign 1 marks for "Strongly Agree" 2 marks for "Agree" 3 marks for "Undecided" 4 marks for "Strongly Disagree" 5 marks for "Strongly Disagree". From above table-2, it is clear that the calculated mean score of reaction towards the statement "It is difficult to read in computer" is 3.6 out of 5. It may, therefore, be said that the colour combination was very attractive.

The calculated mean score of reaction towards the statement "Animations are used appropriately" is 4.1 out of 5 that means most of the students agreed with this statement. It may, therefore, be said that the Animations were used appropriately.

The calculated mean score of reaction towards the statement "Animation helps in understanding content easily" is 4.25 out of 5 that means most of the students agreed with this statement. It may, therefore, be said that Animation helps in understanding content easily.

The mean score of reaction towards the negative statement "It is not interesting in understanding content by animation" is 3.81 out of 5. It may, therefore, be said that the understanding of the content by animation was very interesting.

The calculated mean score of reaction towards the negative statement "Use of symbols is not appropriate and correct" is 3.92 out of 5. It may, therefore, be said that the use of symbols were appropriate and correct.

The calculated mean score of reaction towards the negative statement "Sufficient examples are not given to understand the topic" is 3.7 out of 5. It can thus be concluded that sufficient examples were given to understand the topic.

Above table -1, clearly indicates that the calculated mean score of reaction towards the statement "Theorems have been easily taught" is 4.6 out of 5 which is very high, means most of the students agreed with this statement. Hence we concluded that the theorems were easily taught.

Overall, therefore, be said that the content was presented in both languages Hindi and English, so it was very easy to understand. Students didn't face any difficulty in reading in computer and learnt easily through WBI. Students believed that they can learn easily any time any place through WBI, they can practice again and again with the help of WBI, and they can find solutions of their difficulties with the help of WBI. They learnt more conveniently and effectively through WBI. Animations were used appropriately, animation helps to understand the content easily and understanding of the content by animation was

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very interesting. The colour combination was very attractive, which helps to understand the content. Uses of symbols were appropriate and correct, sufficient examples were given to understand the topic and theorems were easily taught.

Conclusion

Web Based Instructional Material on Mathematics was found to be effective in terms of Reaction towards Web Based Instructional Material on Mathematics. Web Based Instruction on Mathematics was found to be effective in terms of Reaction Towards Web Based Instructional Material on Mathematics. Majority of students gave favourable reaction towards different aspects of Web Based Instructional Material on Mathematics. This finding is not supported by Snell et.al.(1999), Cooper (2001) , Nagalakshmi and Manikam(2011), who found that students expressed favourable opinion towards Traditional Method(face-to-face learning) but findings of this study are supported by Yatrakis and Simon (2002), Lee (2005), Chen and Jones (2007), Erdogan (2008), found that students expressed favourable opinion towards the Web Based Instruction/ Online learning. One of the reasons might be that students felt free in interacting with their classmates, as there was no tension due to the absence of teacher. Normally, students react favourably only if the Web Based Instructional Material is of some use. The Web Based Instruction on Mathematics was studied by students any time and at any place which supports the former argument. This might be the reason for the present finding.

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