

Evaluation of Science Textbook of Class Viii of Jammu And Kashmir State Board of School Education On The Basis Of Responses of Students

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Abstract:

The present study is related with the, "Evaluation of Science Textbook of Class VIII of J & K State Board of School Education on the basis of Responses of Students". The study was conducted on 500 Students which were randomly selected from four districts of South Kashmir namely Anantnag, Kulgam, Shopian and Pulwama which were selected from different private and government schools of district Anantnag, Kulgam, Shopian and Pulwama of Jammu and Kashmir. Gender equality was maintained where ever possible. Respondents were selected from diverse socio- economic status. Opinionnaire scale developed by the researcher was used for knowing the responses of students. Data were analysed by using Chi-Square. The main findings of the research were; According to the students, most of the aspects of the book are up to the mark and need no review but there are certain aspects of the book which need a change such as Cover page of the book, introduction of the chapters, picture(s) displayed on different pages, Paper used for the book.

Key Words: Evaluation, Jammu and Kashmir, Opinionnaire.

Rationale of the Study:

Curriculum is the basic principle of any education system which needs to be updated to bring changes in the whole education system. Textbook forms the basis of curriculum and is an important component of the education system that needs to be evaluated and updated on regular basis. Textbook plays an important role in teaching learning process as it occupies a unique position as it addresses the students' needs and is used by the teachers as a vital instructional material. Thus it should be kept in mind that textbooks once made should not be considered final for all times to come but should be evaluated from time to time to keep the pace with the changing world. A textbook if it fulfills the purpose for which it was made can be used as an effective tool of instruction. Thus textbooks need to be evaluated from time to time and evaluation of any kind is carried out to check whether it has achieved the predetermined goals or not. Textbook evaluation provides us evidences about the merits and demerits of the book and how well the students and teachers are satisfied with it. Various studies have been conducted on evaluation of textbooks by different researchers as Joshi (1972) studied on, "Content analysis of general science textbook for standard IV, College of Education, Jalgaon", Kher (1972) studied on "A Critical Evaluation of History Textbook for Standard VI", Pattabhram (1973) studied on "An Evaluation of Nationalized Textbooks for Higher Classes in Social Studies in Secondary Schools of Andhra Pradesh", Rastogi and others (1975) studied on "A Comparative Study of Mother Tongue Textbooks Prescribed for Primary Classes in Bengali, Gujarati, Hindi (Delhi), Hindi (UP), Telugu and Urdu", Rastogi (1975) and others studied on "Preparation and Evaluation of Textbooks in Mother tongue-

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Principles and Procedures", Roy (1975) studied on "*Evolution of Bengali Textbooks*", SIE (1975) conducted a research on "*Development of an evaluation form and evaluating effectiveness of the experimental textbook 'Science is doing' for class III prepared by NCERT, in the Orissa Schools*", Patel, (1976) studied on "*A Study of Readability Indices of the Prescribed Science Material for Class VIII and its Effectiveness on Reading Comprehension*", Saksena (1977) studied on "*A Critical Study of Hindi Composition of the Students of VIII, IX and X of Hindi Medium Secondary Schools of Greater Bombay with a view to Improve their Linguistic Expression*", JOSHI (1979) Studied "*Development of an edit code for evaluating school science textbooks*", LALITHAMMA (1981) Studied on "*Formulation of criteria for writing textbooks in mathematics and evaluation of mathematics textbooks prescribed for the secondary schools of Kerala*", KARIM (1982) Studied on "*An analysis of the contents of the History textbooks followed in Kerala schools with a view to developing models and materials for national integration*", THARWANI (1982) researched on "*a critical study of the prescribed textbooks in Hindi lower level from standards V to X in Maharashtra state with a view to their improvement*", SINGH (1984) researched on "*a critical evaluation of nationalized English textbooks for classes VI to X of Haryana*", SHARMA (1985) researched on "*A study in the comprehensibility of language used in Science, Social science and Language textbooks at primary level*", EKBOTE (1985), researched on "*linguistic analysis of the textbooks of Marathi mother tongue prescribed for standard I to X by the Maharashtra State Board of Secondary education*", BHATT (1986) researched on "*An investigation into various components of textbooks in students of XI and XII of Gujarat state*", BHATIA (1987), researched on "*Evaluation of Sindhi text books for standard VIII to X prescribed in secondary schools of Maharashtra state*", MEHTA (1988), researched on "*motivational factors as reflected in the Hindi textbooks prescribed in Gujarat state in the post-independence era*", Rao (1993) studied on: *An Evaluation of the Senior Secondary School Physics Textbooks Produced by N.C.E.R.T.*, Pathak (1994) studied on : *An Investigation into the effect of Readability Indicates of the Text Books of English Prescribed in State of Gujarat for Standards VIII, IX and X in the context of the Reading Ability of the Pupils upon their Reading Comprehension*, Gote (1997) studied on: *A Critical Study of Geography — Textbooks for Standard 1 to 5 as per the Syllabus Prescribed by the Government of Maharashtra in 1989*, Pai (1997) studied on: *Evaluation of Mathematics Textbooks for Standard V, VI and VII Published by Gujarat State Board of School Textbooks*, Jayaraj (1998) studied on: *Content Analysis and Evaluation of English Textbooks of Standard XII in Tamil Nadu and Kerala*, Bharambe (1999) studied on: *Critical Study of Mathematics Textbooks of Standard I to V as per Syllabus prescribed by Maharashtra State since 1989*, Garayeva (2001) researched on "*What Criteria do Instructors Appear to Use to Evaluate a Textbook (Bilkent University)*", Alkader (2002) studied on : *Analytical and Evaluate Study of the Secondary School Biology Textbooks in Yemen to Study to What Extent Learning Objectives are Achieved*, Babu (2002) studied on: *A Critical Evaluation of the Content and Teaching of Mathematics for Class_3 and Class- 5 in Andhra Pradesh*, Santhi (2007) studied on: "*An Evaluation of the English Textbook at Higher Secondary Level in Tamil Nadu: A Linguistic Study*", Prakash (2008) studied on: *A Content Analysis of Environmental Education Textbooks of Primary Stage in Schools of Rajasthan*, Ludbe (2009) studied on: "*A Critical Study of Crescent English Course for Secondary Stage in Yemen*", Tok (2010) researched on "*TEFL textbook evaluation: from teachers' perspectives (Turkey)*", Mukundan (2012) researched on "*Evaluative Criteria of an English Language Textbook Evaluation Checklist (Malaysia)*", Kumar (2013) studied on: "*An Evaluation of Environmental*

Education Programme in Secondary Schools in Punjab”, Nguyen (2015) researched on “An Evaluation of the Textbook English 6: A Case Study from the Secondary Schools in the Mekong Delta Provinces of Vietnam”, Rahmawati (2018) researched on “A Content Analysis of the English Textbook, Primary English as a Second Language (Surabaya)”, Rashid (2019) studied on: A Evaluation Study of Science Textbooks of Class VIII, IX and X in the Context of Environmental Awareness.

And many more studied different aspects of textbook in different states of India, but no research has been done in the evaluation of Textbooks in Jammu and Kashmir. Thus there is a drive need to undertake this research work and evolve suitable textbooks which help students to achieve the progress they must make to keep pace with the advancing world. That is why the present study by the researcher has been under taken.

STATEMENT OF PROBLEM:

EVALUATION OF ENGLISH TEXTBOOK OF CLASS VIII OF JAMMU AND KASHMIR STATE BOARD OF SCHOOL EDUCATION ON THE BASIS OF RESPONSES OF STUDENTS

OPERATIONAL DEFINITION:

STUDENTS: In the present study only class 8th students were selected in the sample and the data was collected at the end of the session.

Objectives:

The following was the objective of this research:

To evaluate Science Textbook of Class VIII of Jammu and Kashmir State Board of School Education on the basis of responses of Students.

Sample:

The study was conducted on 500 students which were randomly selected (lottery method) from four districts of south Kashmir namely Anantnag, Kulgam, Shopian and Pulwama. The data was collected from government and private schools of district Anantnag, Kulgam, Shopian and Pulwama. Gender equality was maintained where ever possible. Respondents were selected from diverse socio- economic status.

Tools

In the present study the researcher developed Opinionnaire scale for data collection. The Opinionnaire consisted of 35 items. The items were related to the physical as well as to the academic aspects of the book.

Procedure of data collection

Taking the permission from the principals of selected schools data was collected by using Opinionnaire scale. Opinionnaire Scale was personally administered to the respondents. They

were made aware that their responses are being used for research purpose and will be kept confidential.

Statistical Technique

The data was analysed by using Chi-Square.

Findings:

Major findings of the research were:

1. Cover page of the book is Attractive.

	Fo	Fe	Fo-Fe (Residual)	Test Statistics	
SA	22	100.0	-78.0		S1
A	36	100.0	-64.0	Chi-Square	498.900 ^a
UN	55	100.0	-45.0	Df	4
D	93	100.0	-7.0	Asymp. Sig.	.000
SD	294	100.0	194.0		
Total	500				

From
the
above

table it is clear that the Chi-Square value is 498.900 with df=4 whose significance value is .000 which is less than 0.01. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the attractiveness of the cover page, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 77.4% of the students either disagree or strongly disagree with the statement. Thus, it can be concluded that majority of the students do not find the cover page of the book attractive.

The reason being that the cover page of the science textbook is weak and moreover the pictures on the coverage are blurred which doesn't catch the eye of the readers. The pictures are not colourful and attractive. Moreover, caption of the pictures is missing thus, the pictures carry little importance.

2. Introduction of the chapters is very brief.

	Observed N	Expected N	Residual	Test Statistics	
SA	80	100.0	-20.0		S3
A	92	100.0	-8.0	Chi-Square	8.080 ^a
UN	102	100.0	2.0	Df	4
D	112	100.0	12.0	Asymp. Sig.	.089
SD	114	100.0	14.0		
Total	500				

From above table it is clear that the Chi-Square value is 8.080 with $df=4$ whose significance value is 0.089 which is greater than 0.05. Hence, the value is not significant at 0.05 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the brief introduction of the chapters is accepted. Therefore, it can be concluded that the frequencies of different responses from students don't differ significantly.

Therefore, the observed difference in the frequencies are due to chance or sampling fluctuations. In fact, the opinion of the students about the statement is equally divided for and against the statement.

In the beginning of the textbook from chapters 1 to 10, the introduction is very brief and afterwards the introduction looks good and thus the book needs revision in terms of the introduction in the initial chapters.

3. Pictures displayed on different pages are eye pleasing.

	Observed N	Expected N	Residual	Test Statistics	
UN	12	100.0	-88.0		S5
SA	42	100.0	-58.0	Chi-Square	577.060 ^a
D	53	100.0	-47.0	Df	4
A	83	100.0	-17.0	Asymp. Sig.	.000
SD	310	100.0	210.0		
Total	500				

From above table it is clear that the chi-square value is 577.060 with $df=4$ whose significance value is 0.000 which is less than 0.01 level of significance. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the eye pleasing pictures displayed on different pages, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 72.6% of the students either disagree or strongly disagree with the statement. Thus, it can be concluded that majority of the students do not find the pictures eye pleasing displayed on different pages.

The reason being that almost all the pictures used in the book are blurred and colour scheme of the pictures is as such that it does not create the interest in the readers and hence are not eye pleasing at all.

4. Pictures for illustrating different concepts are appropriate.

	Observed N	Expected N	Residual	Test Statistics	
59.00	59	100.0	-41.0		S6
79.00	79	100.0	-21.0	Chi-Square	56.040 ^a
92.00	92	100.0	-8.0	Df	4
113.00	113	100.0	13.0	Asymp. Sig.	.000
157.00	157	100.0	57.0		
Total	500				

From above it is clear that the chi-square value is 56.040 with $df=4$ whose significance value is 0.000 which is less than 0.01. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the appropriateness of the pictures for the explanation of different concepts, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 54% of the students either agree or strongly agree with the statement. Thus, it can be concluded that majority of the students do not find the pictures appropriate for the explanation of different concepts in the book.

5. Pictures in the book are blurred, hence does not make it attractive to read.

	Observed N	Expected N	Residual	Test Statistics	
SD	84	100.0	-16.0		
UN	98	100.0	-2.0		S7
D	102	100.0	2.0	Chi-Square	4.420 ^a
SA	103	100.0	3.0	Df	4
A	113	100.0	13.0	Asymp. Sig.	.352
Total	500				

From above table it is clear that the chi-square value is 4.420 with $df=4$ whose significance value is 0.352 which is greater than 0.05. Hence, the value is not significant at 0.05 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding that the pictures in the book are blurred is accepted. Therefore, it can be concluded that the frequencies of different responses from students don't differ significantly.

Therefore, the observed difference in the frequencies are due to chance or sampling fluctuations. In fact, the opinion of the students about the statement is equally divided for and against the statement.

6. Water mark in the book creates no hindrance in reading the words properly in different chapters of the book.

	Observed N	Expected N	Residual	Test Statistics	
UN	24	100.0	-76.0		
A	77	100.0	-23.0		S10
SA	82	100.0	-18.0	Chi-Square	146.740 ^a
D	134	100.0	34.0	Df	4
SD	183	100.0	83.0	Asymp. Sig.	.000
Total	500				

From above table it is clear that the chi-square is 146.740 with $df=4$ whose significance value is 0.000 which is less than 0.01. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the water mark in the book creates no hindrance in reading the words properly in different chapters of the book, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 63.4% of the students either disagree or strongly

disagree with the statement. Thus, it can be concluded that majority of the students find water mark as a hindrance in reading the different words in different chapters.

Moreover, going through the book it was found that at page numbers 02, 07, 17, 26, 37, 38, 39, 41, 42, 48, 51, 52, 54, 56, 83, 93, 101, 108, 125, 151, 161, 215, 217, 218 water mark does make it difficult for the readers to read the words properly. Hence, water mark in the book should be removed to make it a better book.

7. The book is not entirely free from printing mistakes.

	Observed N	Expected N	Residual		
SD	90	100.0	-10.0	Test Statistics	
UN	93	100.0	-7.0		S16
D	97	100.0	-3.0	Chi-Square	4.560 ^a
A	103	100.0	3.0	df	4
SA	117	100.0	17.0	Asymp. Sig.	.335
Total	500				

From above table it is clear that the chi-square value is 4.560 with df=4 whose significance value is 0.335 which is greater than 0.05. Hence, the value is not significant at 0.05 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the printing mistakes in the book is accepted. Therefore, it can be concluded that the frequencies of different responses from students don't differ significantly.

Therefore, the observed difference in the frequencies are due to chance or sampling fluctuations. In fact, the opinion of the students about the statement is equally divided for and against the statement.

Moreover, by going through the book it was found that there are printing mistakes in the book on page numbers 03, 07, 31, 41, 48, 122, 178, 179, 183, 211, 214, 216, 218.

8. Paper used for the book is of good quality.

	Observed N	Expected N	Residual		
UN	11	100.0	-89.0	Test Statistics	
SA	23	100.0	-77.0		S17
A	27	100.0	-73.0	Chi-Square	565.840 ^a
D	153	100.0	53.0	df	4
SD	286	100.0	186.0	Asymp. Sig.	.000
Total	500				

From the above table it is clear that the Chi-Square value is 565.840 with df=4 whose significance value is .000 which is less than 0.01. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the good quality of paper, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 87.8% of the students either disagree or strongly disagree with the statement. Thus, it can be concluded that majority of the students do not find the paper used for the book of good quality.

The paper used for the book looks roughed up or recycled paper and is not durable at all which will withstand a whole year or session. Thus, this aspect of the book needs definite modification.

9. Book is securely bound.

	Observed N	Expected N	Residual	Test Statistics	
UN	22	100.0	-78.0		S18
SA	55	100.0	-45.0	Chi-Square	200.960 ^a
A	89	100.0	-11.0	df	4
D	129	100.0	29.0	Asymp. Sig.	.000
SD	205	100.0	105.0		
Total	500				

From the above table it is clear that the Chi-Square value is 200.960 with df=4 whose significance value is .000 which is less than 0.01. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the secure binding of the book, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 66.8% of the students either disagree or strongly disagree with the statement. Thus, it can be concluded that majority of the students do not find the book securely bound.

Ongoing through the different pages it looks that the book is loosely bound and will not be able to hold the different pages together for a whole session. Thus, binding of the book needs revision as well.

10. Distribution of chapters in the book (Physics, Chemistry and Biology) is not appropriate.

	Observed N	Expected N	Residual	Test Statistics	
UN	52	100.0	-48.0		S21
D	93	100.0	-7.0	Chi-Square	42.760 ^a
SD	105	100.0	5.0	df	4
A	107	100.0	7.0	Asymp. Sig.	.000
SA	143	100.0	43.0		
Total	500				

From the above table it is clear that the Chi-Square value is 42.760 with df=4 whose significance value is .000 which is less than 0.01. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the appropriateness of the distribution of the chapters, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 50% of the students either agree or strongly agree with the statement. Thus, it can be concluded that majority of the students do not find the appropriateness of distribution of chapters in the book.

On revision of the book it was found that chemistry portion contained 02 chapters, physics contained 07 chapters, biology contained 04 chapters and environmental science contained 04

chapters. It is evident that much emphasis has been laid on physics whereas least importance has been given to chemistry portion.

11. Chapters in the book are logically interrelated with each other.

	Observed N	Expected N	Residual		
UN	23	100.0	-77.0	Test Statistics	
SA	24	100.0	-76.0		S23
A	27	100.0	-73.0	Chi-Square	650.440 ^a
D	107	100.0	7.0	df	4
SD	319	100.0	219.0	Asymp. Sig.	.000
Total	500				

From the above table it is clear that the Chi-Square value is 650.440 with df=4 whose significance value is .000 which is less than 0.01. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the logical interrelation of the chapters in the book, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 85.2% of the students either disagree or strongly disagree with the statement. Thus, it can be concluded that majority of the students do not find any logical interrelation of chapters in the book.

12. Difficulty level of the contents in the book increases from chapter I to next and so on.

	Observed N	Expected N	Residual		
A	22	100.0	-78.0	Test Statistics	
SA	29	100.0	-71.0		S28
UN	39	100.0	-61.0	Chi-Square	619.840 ^a
D	93	100.0	-7.0	df	4
SD	317	100.0	217.0	Asymp. Sig.	.000
Total	500				

From the above table it is clear that the Chi-Square value is 619.840 with df=4 whose significance value is .000 which is less than 0.01. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the difficulty level of the contents in the book, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 82% of the students either disagree or strongly disagree with the statement. Thus, it can be concluded that majority of the students do not find that the difficulty level of the contents in the increases from chapter 1st to next and so on.

13. There is continuity in the book which you have studied in earlier class (Class VII).

	Observed N	Expected N	Residual
SA	38	100.0	-62.0

A	42	100.0	-58.0	Test Statistics		
UN	92	100.0	-8.0			
SD	129	100.0	29.0			
D	199	100.0	99.0		S29	
Total	500				Chi-Square	179.140 ^a
					Df	4
					Asymp. Sig.	.000

From the above table it is clear that the Chi-Square value is 179.140 with df=4 whose significance value is .000 which is less than 0.01. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the continuity of the book with earlier class, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 82% of the students either disagree or strongly disagree with the statement. Thus, it can be concluded that majority of the students do not find any continuity in the book which they have studied in earlier class.

14. Language used in the book is simple to understand.

	Observed N	Expected N	Residual	Test Statistics	
UN	32	100.0	-68.0		S30
A	67	100.0	-33.0	Chi-Square	149.420 ^a
SA	76	100.0	-24.0	df	4
D	142	100.0	42.0	Asymp. Sig.	.000
SD	183	100.0	83.0		
Total	500				

From the above table it is clear that the Chi-Square value is 149.420 with df=4 whose significance value is .000 which is less than 0.01. Hence, the value is significant at 0.01 level of significance. In view of this, the null hypothesis that the frequencies of responses regarding the simple language used in the book, don't differ significantly is rejected. Therefore, frequencies of different responses differ significantly. Further, from the observation of frequencies it is clear that 65% of the students either disagree or strongly disagree with the statement. Thus, it can be concluded that majority of the students do not find the language used in the book simple to understand.

15. Do you feel that there are certain chapters in the book which are too difficult to understand, if yes, write the name of the chapters.

Friction: (234/500) (46.8%)

Force and Pressure: (137/500) (27.4%)

Light: (129/500) (25.8%)

Most of the students are of the view that book is neither too easy nor too difficult. However students have found three chapters which according them are difficult, which are Friction, Force and Pressure and Light.

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