

A Study on the Open Book Examination in Terms of Achievement in Language Subjects and Examination Anxiety of Standard VIII Students

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ABSTRACT

Examinations are there to complement teaching learning process and to see whether the objectives of education are achieved. But in this competitive world, examinations are considered as the only vital component of the education process. Hence, these are given maximum emphasis to get maximum marks by simply mugging up the content and reproducing those at the time of examination. Open Book Examination (OBE) is one that is designed to minimize this negative impact of examinations and to enhancing the quality of teaching learning developing higher order thinking among students. It also helps students to remove the fear of examination as it minimizes cramming. An attempt is made in this research paper to examine the effectiveness of OBE in terms achievement of standard VIII students in Language subjects along with the examination anxiety. The findings showed that OBE is not effective in enhancing the achievement of students in any language subjects. It also did not help to reduce the examination anxiety of students significantly.

Key Words: Innovative Examination, Higher Order Thinking, Open Book Examination, Examination Anxiety, Language Evaluation.

INTRODUCTION

Education is very important for the overall development of child. Education provides a child the knowledge and skill that prepares him physically, mentally, emotionally and socially for the world of work and a better life. It plays an important role in the overall development of the child. Hence, there is a need to strengthen each and every component of education with the help of new ideas and research to enhance the quality of the system. Evaluation is one of the components of the education system which needs to be strengthened for the betterment. A good evaluation and examination system can become an integral part of the learning process and benefit both the learners themselves and the educational system by giving credible feedback. Open Book Examination (OBE) is one such

innovative concept that may be quite helpful to our education system. OBE is similar to traditional Close Book Examination (CBE). The major difference is that in OBE, students are allowed to bring their textbooks, notes or other reference materials into the examination situations. This examination is not radically different from CBE. OBE demands that the course focuses on a set of intellectual skills, rather than on the information content itself. (Mukherji, 1986). In OBE questions are designed in such a way that the answers will not be found in the textbooks, handouts or class notes directly. An intelligent student, who has the experience of such examinations once, will not bother to bring anything for the next examination, since she/he will know that no prepared material will be of any use. The use of these examinations then

acts as symbolic gesture that makes the students realize the nature of the course and the examinations, and shocks them into a mode of studying that does not involve cramming. According to Mohanan (1997), followings are the objectives of OBE.

- To improve the quality of education, by developing the student's ability to think independently and creatively and the ability to process the information analytically.
- To remove fear and emotional block encountered by students during examination and to reduce examination stress and tension.
- To reduce rote memorization or to usual mugging in present examination.
- To increase the course content mastery.
- To increase the concentration power and to develop interest of the students for the subjects he/she study.
- To enhance the creative thinking, imaginative power, critical thinking, comprehension and synthesizing skills.
- To make education a pleasurable activity and not a painful drudgery.
- To build new knowledge and to apply available knowledge to solve problems and make intelligent decisions.

Language subjects are taught in the school to develop LSRW skills of the particular language and hence it needs higher level skills of analysis, synthesis and evaluation. Hence, most of the examinations of language subjects are meant to measure higher order thinking among students. OBE seems quite defeating for the evaluation language subjects.

The researchers reviewed nearly 24 research studies in the area of OBE in India and abroad. The implications of the review of the related literature is put here which could be useful for the present study. Studies conducted by Theophilides and Dionysiou (1996), Rajput (2008), Vaghrodi (2008), Chaudhari (2009), Thakar (2009), Siddik (2010), Kumari (2011), and Unikrishnan (2011) were mainly based on opinion or attitude of either teachers or students or parents about OBE and variables

associated to it. Most of the studies revealed a positive attitude of teachers, students and parents towards OBE irrespective of their sex, stream, geographical area of schooling and experience. Studies conducted by Pauker (1974), Francis (1982), Richard (1985), Loannidou (1997), Bright well, Daniel and Stewart (2004), Agarwal (2007), Vyas and Vyas (2009), Biswal and Das (2011), Gupta (2011) and Ranjan (2011) were found to be experimental studies in which the effectiveness of OBE was measured. OBE was found to be better than CBE with respect to one or more aspects like, enhancing content achievement, divergent thinking, higher order thinking, decreasing test/examination anxiety etc. in the studies conducted by Francis (1992), Richard (1985), Theophilides and Dionysiou (1996), Agarwal (2007), Vyas and Vyas (2009), Biswal and Das (2011), Gupta (2011), and Ranjan (2011). Studies conducted by Pauker (1974), Loannidou (1997), and Bright well, Daniel and Stewart (2004) revealed that both OBE and CBE have their own merits and demerits and both have strength in enhancing students' achievement. In most of the experimental studies, OBE is considered only in the context of students evaluation, where as OBE is considered as a part of the process and evaluation in the studies conducted by Biswal and Das (2011) and Gupta (2011). The researchers do not come across any study which evaluates students with respect to OBE and CBE in language subjects along with the examination anxiety. Hence the present study is an attempt in this direction where the researcher is interested to see whether OBE will help in the process of evaluation of language subjects and to know its impact on the examination anxiety of the students. The study was conducted in this direction to achieve the following objectives.

Objectives of the Study

1. To study the effectiveness of OBE in terms of the achievement of standard VIII students in Language subjects.

2. To study the effectiveness of OBE on the examination anxiety of standard VIII students.

HYPOTHESIS

The following null hypothesis were formulated and tested at 0.05 level of significance.

1. There will be no significant difference between the mean achievement score of standard VIII students in English examined through CBE and OBE.
2. There will be no significant difference between the mean achievement score of standard VIII students in Hindi examined through CBE and OBE.
3. There will be no significant difference between the mean achievement score of standard VIII students in Gujarati examined through CBE and OBE.
4. There will be no significant difference between the mean examination anxiety score of standard VIII students during their examination appeared through CBE and OBE.

Operationalization of Terms

Examination Anxiety: Examination anxiety is the score secured by students on Examination Anxiety Scale prepared by the investigators.

Achievement of students: Achievement of the students in English, Hindi and Gujarati is the score obtained by the students in the specific subject achievement tests respectively prepared by the investigators.

Explanation of Terms

Open-Book Examination: For the present study, OBE is the examination of the students where the students were allowed to see and refer their text books, class notes or any other reference material during examination.

Close Book Examination: For the present study, CBE is the examination of the students where the students were not allowed to see and refer any of their text books, reference materials and class notes during examination.

Delimitation of the Study

The study was delimited to the Gujarati medium grant-in-aid schools of Vadodara city following Gujarat Secondary and Higher Secondary Education Board (GSHEB) syllabus and the course covered in the first semester only.

Sample

Sample was selected through convenient sampling. One of the Grant-in-aid schools of Vadodara city was selected as per the convenience of the investigators and 35 students of Standard VIII of the school constituted as the sample for the present study.

Tools for Data Collection

Following tools were constructed by the researchers for the purpose of data collection.

Examination Anxiety Scale: An examination anxiety scale was constructed by the investigators to measure the level of anxiety just after the examination. The scale has 25 items. The scale was validated by the subject experts in the area of Psychology.

Achievement Tests: The investigators had constructed three achievement tests and three parallel achievement tests in the subjects of English, Hindi and Gujarati for standard VIII students following GSHSEB syllabus of semester I. The investigators did the content analysis of the syllabus for semester I and prepared the three dimensional blue prints in all the three subjects. On the basis of designed blue prints six achievement tests i.e. two in each subject were constructed. Questions included in the achievement tests were mainly of higher cognitive levels like, understanding, application, analysis and synthesis keeping in mind that the answers of any question would not directly found from the books. Each of the achievement tests was of 30 marks each. Prepared achievement tests were validated by the subject experts.

Data Collection

Data were collected directly by the investigators. Students of the sample groups

were informed about the examination 15 days prior to the date of examination about the pattern of examination and the type of questions asked in the question papers. They were also instructed to refer the text books, class notes or any reference materials related to their subjects during the OBEs. An examination schedule was prepared for OBE and CBE. CBEs were conducted on the sample group for three consecutive days for three subjects. Examination anxiety scale was administered on the students on the third day just after completion of all the CBEs. After a gap of one week the OBEs were conducted on the sample group for three consecutive days with the parallel achievement tests. Again, the same examination anxiety scale was administered on the students just after completion of all the OBEs.

Data Analysis and Interpretation

Data were analyzed with the help of statistical techniques like mean, Standard Deviation and Mann Whitney U-test. Detailed analysis of data is presented objective wise as follow.

Effectiveness of Open Book Examination in terms of Achievement in Languages

To achieve objective 1 and to test the null hypotheses 1,2 and 3, data were presented in table 1 and table 2 followed by analysis.

Table 1: Mean, Standard Deviation (SD) and Standard Error (SE) of Mean wise distribution of Achievement in Language subjects of students in OBE and CBE.

Subjects	Type of examination	N	Mean	SD	Se of mean
English	OBE	35	15.38	5.39	1.18
	CBE		17.24	7.29	1.59
Hindi	OBE	35	17.65	4.236	0.95
	CBE		16.30	5.005	1.12
Gujarati	OBE	35	18.65	6.083	1.36
	CBE		16.95	7.112	1.59

From the table 1, it was found that the mean achievement of students in English appeared through OBE and CBE were 15.38 and 17.24 respectively out of total score of 30. The Standard Deviations from the Means for the achievement in English were found to be 5.39 and 7.29 respectively for OBE and CBE with Standard Error of

Means of 1.18 and 1.59 respectively. Comparing the Means of the groups in English it was found that the Mean achievement in English through CBE was higher than that of OBE. From the Standard Deviations, it was observed that students' achievement scores were more homogenous in case of OBE in comparison to their CBE achievement score. The standard error of Mean of the group appeared through CBE was found to be more than that of the group appeared through OBE. The higher mean achievement score in CBE in English achievement showed that OBE have no impact on the achievement students in English which may be due to the different examination pattern.

From the same table, it was found that the Mean achievement in Hindi of students appeared through OBE and CBE were 17.65 and 16.30 respectively out of total score of 30. The Standard Deviations from the Means for the achievement in Hindi were found to be 4.23 and 5.00 respectively for OBE and CBE with Standard Error of Means of 0.95 and 1.12 respectively. Comparing the Means of the group in Hindi it was found that the Mean achievement in Hindi through OBE was higher than that of CBE. From the Standard Deviations and Standard Error of Means, it was also observed that students' achievement scores were more heterogeneous in OBE in comparison to their CBE. The higher mean achievement score in OBE in Hindi achievement and more standard deviation and standard error of mean in comparison to their achievement of Hindi in CBE may be due to the different examination pattern.

From the same table 1, it was also found that the Mean achievement in Gujarati of students appeared through OBE and CBE were 18.65 and 16.95 respectively out of total score of 30. The Standard Deviations from the Means for the achievement in Gujarati were found to be 6.08 and 7.11 respectively for OBE and CBE with Standard Error of Means of 1.36 and 1.59 respectively. Comparing the

Means of the group in Gujarati it was found that the Mean achievement in Gujarati through OBE was higher than that of CBE. From the Standard Deviations and Standard Error of Means for both the examinations it was also observed that students' achievement scores were more heterogeneous in OBE in comparison to their CBE achievement score. The higher mean achievement score in OBE in Gujarati

achievement and more standard deviation and standard error of mean in comparison to their achievement of Gujarati in CBE may be due to the different examination pattern.

To find whether the difference in the mean achievement scores in English, Hindi and Gujarati were significant or by chance and to test the null hypothesis 1, 2 and 3 the summary of Mann-Whitney U-test is presented in table 2.

Table 2: Summary of Mann-Whitney U-test for Achievement in Language subjects of students appeared examination with OBE and CBE, Sum of Ranks, U-value, z-value and Probability.

Subjects	Type of Exam.	N	Sum of Ranks	U-value	z-value	Probability
English	OBE	35	387	177	-0.62	0.5352
	CBE		433			
Hindi	OBE	35	441	231	0.83	0.4066
	CBE		379			
Gujarati	OBE	35	434.5	224.5	0.66	0.5092
	CBE		385.5			

From table 2, it was observed that the Sum of ranks for OBE and CBE in English achievement score were 387 and 433 respectively. The U-value and z-value were found to be 177 and -0.62 respectively. Referring Table for normal probability (Table A of Siegel, 1956) under null hypothesis H_{01} of for $z \leq -0.62$, the two tailed probability was found to be 0.0006 which is less than our decided significance level (α) i.e. 0.05. Hence the null hypothesis i.e. 'There will be no significant difference between the mean achievement score of standard VIII students in English examined through CBE and OBE' is retained and it can be said that achievement of students in English through OBE and CBE did not differ stochastically and it is by chance. Hence it showed that there was no significant difference in the English achievement of students appeared examination either through OBE or CBE.

From the same table, it was also observed that the Sum of Ranks for OBE and CBE in Hindi achievement score were 441 and 379 respectively. The U-value and z-value were found to be 231 and 0.83 respectively. Referring Table for normal probability under null hypothesis H_{02} of for $z \leq 0.83$, the two tailed probability was found to be 0.4066 which is greater than our decided significance level (α) i.e. 0.05.

Hence, the null hypothesis i.e. 'There will be no significant difference between the mean achievement score of standard VIII students in Hindi examined through CBE and OBE' is retained and it can be said that achievement of students in Hindi through OBE and CBE do not differ stochastically. From table 2, though it was found that the mean achievement of students in Hindi through OBE was more than their mean achievement through CBE, it could be considered only by chance. Hence it showed that there was no significant difference in the Hindi achievement of students appeared examination either through OBE or CBE.

From the same table, it was observed that the Sum of Ranks for OBE and CBE in Gujarati achievement score were 434.5 and 385.5 respectively. The U-value and z-value were found to be 224.5 and 0.66 respectively. Referring Table for normal probability under null hypothesis H_{03} of for $z \leq 0.66$, the two tailed probability was found to be 0.5092 which is greater than our decided significance level (α) i.e. 0.05. Hence, the null hypothesis i.e. 'There will be no significant difference between the mean achievement score of standard VIII students in Gujarati examined through CBE and OBE.' was retained and it can be said that achievement of students in Gujarati through OBE and CBE do not differ

stochastically. From table 1 though it was found that the mean achievement of students in Gujarati through CBE was less than their mean achievement through OBE, it could be considered only by chance. Hence, it showed that there is no significant difference in the Gujarati achievement of students appeared examination either through OBE or CBE.

Effectiveness of Open Book Examination in terms of Examination Anxiety of Students

To achieve objective 2 of the present study and to test the null hypothesis H_0 , data were analyzed using Mean, Standard Deviation and Mann-Whitney U-test which is given and analyzed in table 3 and table 4.

Table 3: Mean Standard Deviation and Standard Error of Mean wise distribution of Examination anxiety scores of students during CBE and OBE.

Type of Examination	N	Mean	Standard Deviation	Standard Error of Mean
Open Book Examination	35	45.57	13.57	2.96
Close Book Examination		47.05	14.61	3.18

From table 3, it was found that the Mean Anxiety scores of students after OBE and CBE were 45.57 and 47.05 respectively. The Standard Deviations of the Means of Anxiety were found to be 13.57 and 14.61 respectively for students after OBE and CBE with Standard Error of Means of 2.96 and 3.18 for Anxiety for the same students respectively. Comparing the Means it was found that the Mean Anxiety of students after CBE was higher than that of students after OBE. From the Standard Deviations and Standard Error of Means of the group it

was also observed that the group was more homogeneous in anxiety after OBE in comparison to their anxiety after CBE. The higher mean anxiety score after CBE and more standard deviation and standard error of mean in comparison to anxiety after OBE may be due to the difference in the examination pattern. To find whether the difference in the mean was significant or by chance and to test the null hypothesis i.e. H_0 , Mann-Whitney U-test was used. The summary of the Mann-Whitney U-test is given in table 4.

Table 4: Summary of Mann-Whitney U-test for Examination Anxiety of students after OBE and CBE, the Number of sample, Sum of Ranks, U-value, z-value and probability

Type of Examination	N	Sum of Ranks	U-value	z-value	Probability (p)
Open Book Examination	35	401	191	-0.24	0.8104
Close Book Examination		419			

From table 4, it was observed that the Sum of Ranks of the groups in OBE and CBE in examination anxiety score were 401 and 419 respectively. The U-value and z-value were found to be 191 and -0.24 respectively. Referring table for normal probability under null hypothesis H_0 of z, for $z \leq -0.24$, the two tailed probability was found to be 0.8104 which is greater than our decided significance level (α) i.e. 0.05. Hence, the null hypothesis i.e. 'There will be no significant difference between the mean examination anxiety score of standard VIII students during their examination appeared through CBE and OBE.' is retained and it can be said that examination anxiety of students after OBE and CBE do

not differ stochastically. From table 3, though it was found that the mean anxiety level after CBE was more than the mean anxiety level after OBE, it would considered only by chance. Hence, it showed that there is no difference in the examination anxiety of students either after OBE or CBE. The analysis of the mean achievement of students in different language subjects and mean examination anxiety scores is given in the Figure 1 for a clear and comprehensive understanding.

From the figure 1, it can be seen that there is difference between the mean English achievement score of standard VIII students examined through OBE and CBE and the mean English achievement of

students examined through CBE was found slightly greater than the mean English achievement score of students examined through OBE. From the same figure it was also seen that the mean Hindi achievement score of students examined through OBE was found greater than the mean Hindi achievement score of students examined through CBE, but it was not found to be significant. It was found from the same figure that the mean Gujarati achievement score of students examined through OBE was found greater than the mean Gujarati achievement score of students examined through CBE, but it was not found to be significant.



Figure1: Graph showing the Achievement of students in Language subjects examined through OBE and CBE along with the examination anxiety score after OBE and CBE.

RESULT

Following result were drawn for the present study on the basis of analysis and interpretation of data.

1. No significant difference was found between the mean achievement of standard VIII students while examined through CBE and OBE in all the language subjects i.e. English, Hindi and Gujarati.
2. No significant difference was found between the mean examination anxiety score of standard VIII students after examined through CBE and OBE.

DISCUSSION

Languages are the subjects where it is essential for the students to comprehend the subject matter acquiring the language skills and developing higher cognitive levels

like analysis and synthesis. But unfortunately in our traditional CBE, lower cognitive levels questions are asked where students prefer to memorize the answers. When the questions in the examinations are of higher cognitive level either in OBE or CBE, it would make the students to think to get the answers. From the findings of the present study, it was found that in the language subjects like English, Hindi and Gujarati no significant differences were observed in the achievement scores of students examined through CBE and OBE. Even no significant difference was found between the mean examination anxiety level of students during their CBE and OBE. Hence, it can be said that no significant impact of OBE was found in terms of the achievement of standard VIII students in the Language subjects and in the anxiety level of the students. The findings of the present study were supported by the studies conducted by Pauker (1974), Loannidou (1997), and Bright well, Daniel and Stewart (2004) which revealed that both OBE and CBE have strength in enhancing students' achievement. Whereas, the findings of the present study were contradicted by the studies conducted by Pauker (1974), Francis (1982), Richard (1985), Loannidou (1997), Agarwal (2007), Vyas and Vyas (2009), Biswal and Das (2011), Gupta (2011) and Ranjan (2011) were OBE was found to be better than CBE with respect to one or more aspects like, enhancing content achievement, divergent thinking, higher order thinking, decreasing test/examination anxiety etc. It may be due to the fact that the present study was not an experimental study where students were not made familiar with the OBE. The second aspect could be considered relating to the findings of the present study that language subjects need the comprehensive abilities of the students to answer any higher level questions in the examination either OBE or CBE. As the students appeared examination both in OBE and CBE in all the language subjects did not score good marks, it can be contributed to the fact that students are not able to answer

the questions of higher cognitive domain easily. Hence, it is essential to prepare students in higher cognitive levels which are a must for language subjects.

CONCLUSION

From the findings of the present study it can be concluded that whatever may be the type of examination either OBE or CBE when the questions in the examination is of higher order thinking level, there is a need to train students to think about the questions and to formulate answers by their own only taking the factual information from the class notes or from the book, which needs an open book environment or climate. OBE is a concept which may reduce the anxiety level of the students and makes them free in their thought. To achieve this objective of free thinking one can develop the constructivist approach of teaching in open climate classroom, than we can do brain storming, can use multimedia approach in teaching learning process, cooperative learning, various sessions on decision making etc, having dialogue approach we can conduct seminars etc. to create an open climate in class room. Hence, it can be said that the open book examination is not an alternative to the close book examination for higher order thinking unless and until an open book climate is created that may take a long time to have an impact on the achievement and anxiety level of the students.

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