

Comparative Study of Objectively Structured Versus Traditional Viva-Voce in Microbiology amongst Second-Year MBBS Students

Dr.Bhausahab Munde , Dr.Rajendra Bhanudas Surpam, Dr.Virendra Kolhe,
Dr.Omprakash Bobade, Dr.Ruchita Gawande, Dr.Gurudev Kunghadkar

Corresponding Author: Dr.Rajendra Bhanudas Surpam

Date Of Submission: 07-01-2020

Date of Acceptance: 23-01-2020

I. Introduction

Asking students to demonstrate their understanding of the subject matter is critical to the learning process; it is essential to evaluate whether the educational goals and standards of the lessons are being met. Assessment inspires us to ask these questions: “Are we teaching what we think we are teaching?” “Are students learning what they are supposed to be learning?” Assessment affects decisions about grades, placement, advancement, instructional needs and curriculum. A viva-voce, an essential component of examination in medical courses, can assess all five cognitive domains - knowledge, comprehension, application, analysis, and synthesis [1]. Various medical universities in India use this format in summative and formative examinations [2]. The traditional viva voce (TVV) examination has many limitations, such as validity, objectivity, comprehensiveness, inter-evaluator variability, repeatability, and possible gender bias [3-5]. In order to address these issues, an objectively structured viva voce (OSVV) format has been proposed. The OSVV format provides every candidate with equal opportunity of fair and standardized assessment while testing his/her knowledge, clinical skills and attitude [6]. Structural oral examination being a novel concept with very few studies done especially in the subject of Microbiology [7].

II. Aim and Objectives

This study was conducted with the following Aim and Objectives:

Aim:

To compare objectively structured versus traditional viva-voce in microbiology subject amongst second-year MBBS students.

Objectives:

1. To assess difference in the marks (performance) obtained by the students in traditional and structured method of viva examination.
2. To evaluate perception of the students regarding Objectively Structured Viva Voce examination by improving objectivity and reliability of oral examination.
3. To evaluate perception of the teaching faculties on Objectively Structured Viva Voce.
4. To assess feasibility of objectively structured viva-voce examination.

III. Materials and Methods

3.1: Study area: The study will be conducted in the department of Microbiology at Government Medical College, Chandrapur, Maharashtra state, India.

3.2: Study Type: Questionnaire Based Comparative Interventional Study.

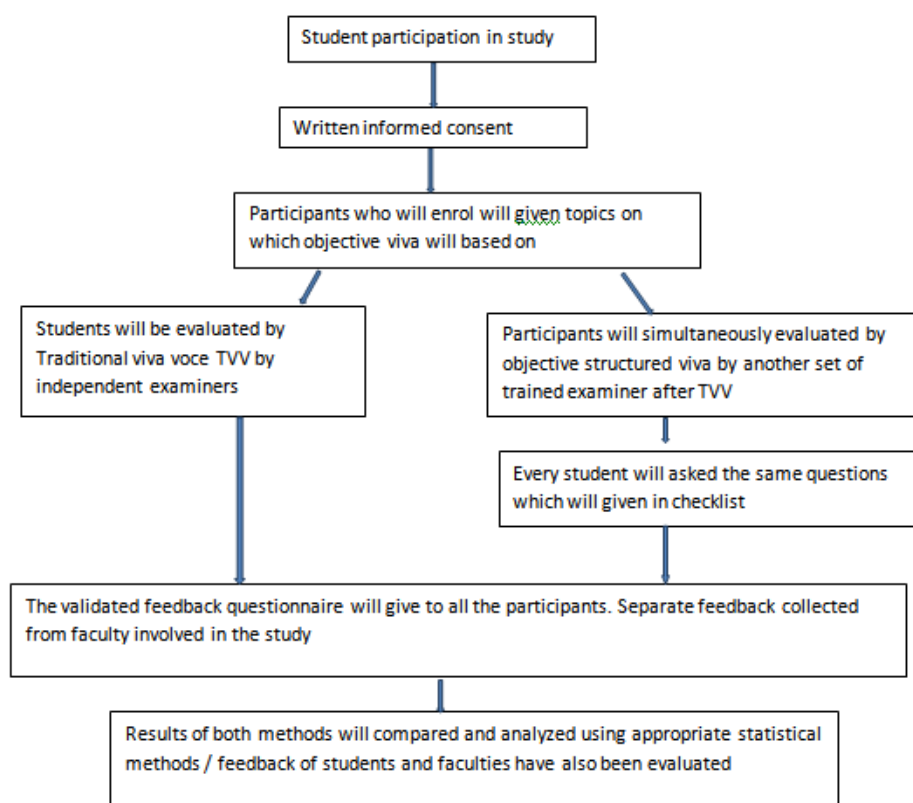
3.3. Methodology: After obtaining approval from Institutional Ethics Committee, Govt. Medical College, Chandrapur, Microbiology faculties will be formulated recall and analytical type questions for viva-voce examination, evaluation pattern and allotment of marks will be determined. Written informed consent will be obtained from sixty two (44 females and 28 males students) second-year (third semester) MBBS students, who will be explained about OSVV format and the distribution of topics. The questions will be prepared & validated by trained teachers to help them to conduct the OSVV. Two sets of teachers conducted TVV and OSVV on four different days for four batches and allotted marks will be out of 20 in each format. After TVV, the students will be appearing for OSVV. The allotted time for OSVV will be eight minutes per student. The overall time taken for the TVV will be recorded. Feedback comprising of nine closed-ended questions (five-point Likert scale) and one open-ended question will be obtained from the students. A separate feedback will be obtained from the faculties involved in the study to evaluate their perception regarding the study.

3.4. Statistical analysis:

The marks obtained will be tabulated on Microsoft Excel. The mean, standard deviation, relative deviate “Z” and Karl Pearson’s correlation coefficient “r” will be calculated. Feedback forms will be evaluated and responses will be expressed as percentages. Confidence interval will be expressed as [Mean-1.96*(Standard error)] - [Mean+1.96*(Standard error)]. Statistical significance will be considered at $p < 0.05$.

Methodology of the study

Student participation in study: 72 students of third semester of 2nd MBBS. 44 females and 28 males (with their odd roll no.) students will be selected at random basis. IEC Approval and Written informed consent will obtain. Students will evaluated by Traditional Viva Voce (TVV) by independent set of examiner. Participants who will enrolled are given topics on which objective viva was based on. Participants will simultaneously evaluated by objective structured viva-voce (OSVV) by another set of trained examiner after TVV. Every student will ask the same questions which will given in checklist. The validated feedback questionnaire will given to all participants involved in the study. A separate feedback will collected from the faculties involved in the study. Results and feedback will be tabulated in excel sheet Results of both methods will compared and analysed using appropriate statistical methods



IV. Observation and Results

4.1. Scores obtained by students: A total of 72 third semester MBBS students (44 females and 28 males) participated in this study. Range of marks obtained by students out of 20 in TVV and OSVV is presented in table-1. The mean marks obtained by 80 students in TVV were little more than OSVV. While there was no significant difference ($p=0.472$; $Z=0.72$), significant correlation (linear relationship; $p<0.01$, $r=0.44$) was observed between marks obtained in the two viva-voce formats. (Table 1 and Graph-1) The average Percentage obtained in TVV was 57.71 ± 06.89 while that obtained in OSVV were 51.94 ± 06.20 . However, this difference was not statistically significant ($p=0.24$).

Table 1: Mean and standard deviation of scores obtained by students (n=72)

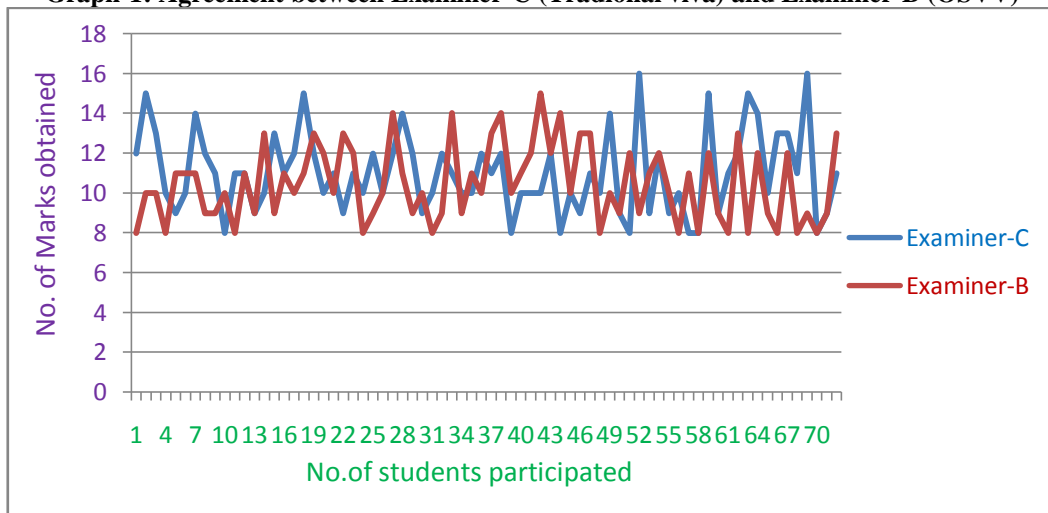
Standard error of difference between two means

Graph-1 presents fair agreement between two examiners as regard to allotment of marks in OSVV and TVV in the present study.

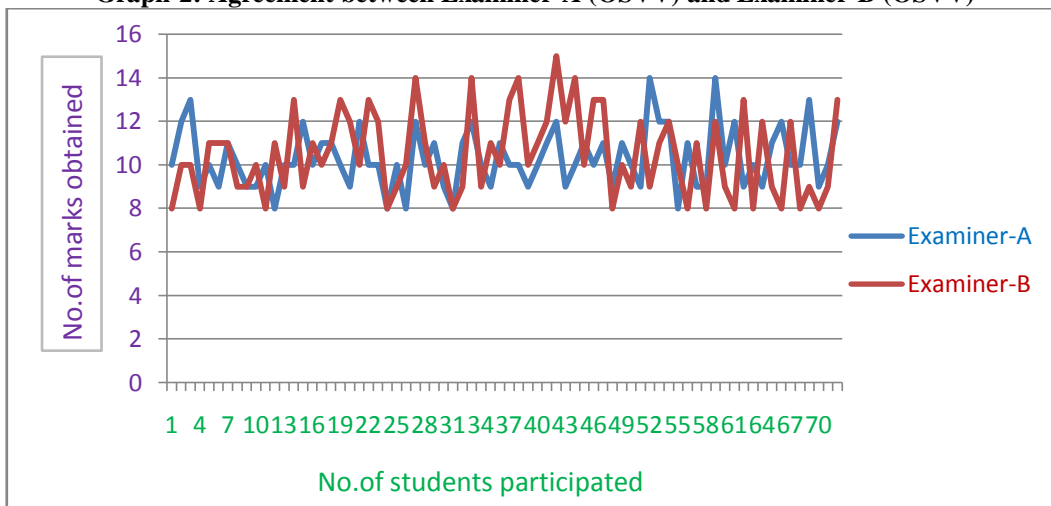
Graph-2 presents perfect agreement between the two examiners as regard to allotment of marks in OSVV in the present study.

Graph-3 presents slightly unfair agreement between two examiners as regard to allotment of marks in TVV in the present study.

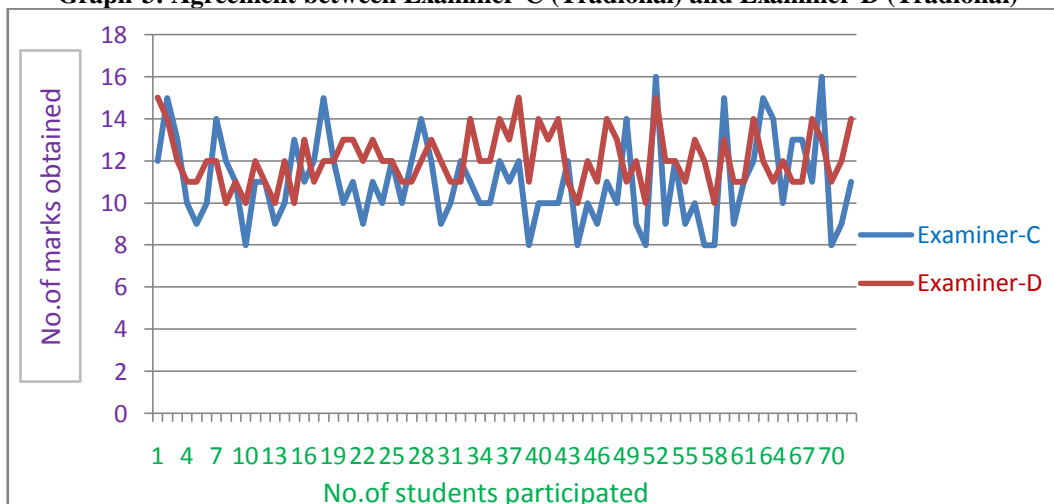
Graph-1: Agreement between Examiner-C (Tradional viva) and Examiner-B (OSVV)



Graph-2: Agreement between Examiner-A (OSVV) and Examiner-B (OSVV)



Graph-3: Agreement between Examiner-C (Tradional) and Examiner-D (Tradional)



4.2. Time taken for viva-voce: The time considered for the TVV has ranged between 3 min. to 10 min, whereas, for OSVV, fixed time of 8 minutes was allotted and 10 questions (covering all topics, with increasing difficulty levels) were asked within that time-frame. In the current study eight minute time period was found to be optimum and satisfactory, although other researchers have stated varying time limits ranging from 8min-25min.[7- 9].

4.4. Feedback: Majority of students were satisfied with OSVV in relation to “justice” to level of preparation, syllabus coverage, duration for answering, Student friendly, relevancy of questions, avoidance of subjectivity/bias, recommendation for university examination, and fifty percent felt that difficulty level was well maintained (Fig. 1). The student’s open-ended feedback on OSVV is outlined in Table 2. Majority of the teaching faculties were of opinion that, OSVV can be used to avoid bias, it is reliable, feasible, acceptable and can be recommended for the university examination (Fig.2).

Fig. 1: Students’ perception regarding objectively structured viva-voce over traditional viva-voce

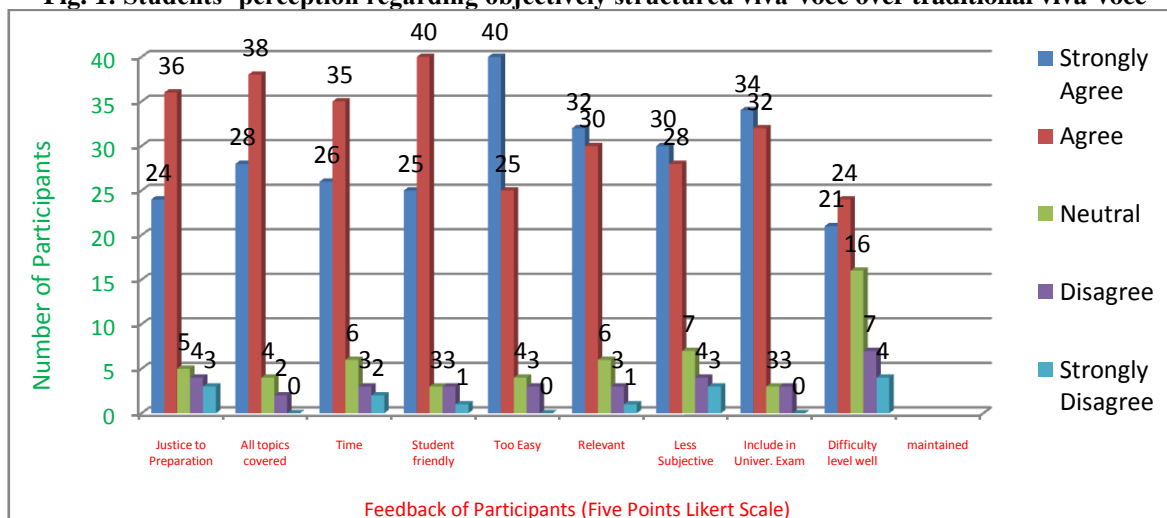
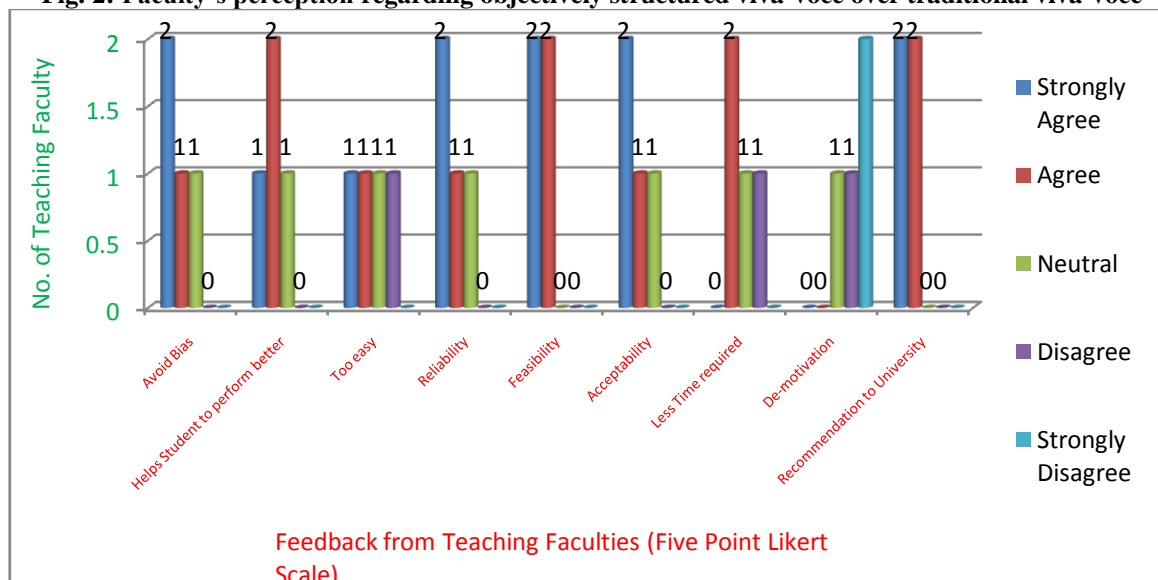


Table 2: Open-ended feedback from students regarding OSVV

Points mentioned in open-ended feedback	Percentage of students (n=72)
Not just favourite questions of examiner	75.0
Reduced “luck factor” in exam	64.5
To-the-point (precise) questions	35.5
Reduced personal bias	27.4
Helpful in preparation for final exam	21.0
I realised what I know from the entire syllabus	01.6

Fig. 2: Faculty’s perception regarding objectively structured viva-voce over traditional viva-voce



By analysing the OSVV mark sheets, the weaker topics were identified, which enabled revision of topics and remedial actions. In the feedback obtained from students on OSVV, majority of students were satisfied about coverage of syllabus, justice given to preparation along with the level of difficulty maintained in viva. (Fig. 1) Students' perception about OSVV was similar to that reported by other studies. [10, 16]. OSVV also helped in giving detailed feedback to the students as the score-sheet of question-answers for each student was maintained by examiner.

In addition, teachers could identify the topics that were not understood by the students (viz. blood culture collection methods, methods for sample collection in anaerobic infections etc.). Hence, analyzed OSVV scores can be used to facilitate modification of teaching in near future.

4.5. Limitations: The inter-rater variability was not ascertained and the study was limited to one semester examination, with limited topics.

V. Discussion

Though Graduate Medical Regulations 1997 have stream lined medical education in the country the element of subjectivity in the evaluation process was not addressed. The MCI task force in its recommended curriculum for MBBS has emphasized the need for introducing structured viva-voce examinations for all subjects so as to have objectivity in the evaluation process [10-13]. In viva-voce examination there is bound to be subjectivity and a likelihood of judgment of examiners being influenced by various factors. To overcome these factors examinations too can be standardized and structured. In that case, first and foremost the examiner has to have the openness to re look into the Conventional Viva Examination (CVE) and accept that, there is a need for introducing objectivity into the system and be willing to work towards standardization of the system thus providing the student a fair chance and effective form of evaluation through Oral examination. [14-16]

The OSVE (Objectively Structured Viva Voce Examination) has been advocated for the practical assessment of pre-clinical, para-clinical and clinical subjects. An attempt was made to test the feasibility and acceptability of implementing this method in the internal assessment by comparing it with TVE (Traditional Viva Voce Examination), and also by obtaining the students' and faculties' opinion, with the help of a feedback questionnaire. The criterion of a good examination includes validity, reliability, objectivity, practicability, relevance, and promotion of learning, power to discriminate between students, relaxed environment and a positive student feedback [17-18].

In the present study fair agreement has been found between Objectively Structured Viva Voce (OSVV) and Traditional Viva Voce (TVV) scores which has also been reported by a study [7] from Sawangi (Wardha, Maharashtra). In contrast to results obtained in the current study, a study [8] from Bhuj, Gujarat has found poor co-relation between marks obtained in the two viva-voce formats. A similar study [2] from Patan, Gujarat has reported that greater variation in the average marks allotted by two different examiners in Traditional Viva Voce (TVV) as compared to those allotted in Objectively Structured Viva Voce (OSVV) and that students obtained significantly less marks in the OSVV format which also found similar in the present study.

In the current study, eight minute time period was found to be optimum and satisfactory, as per the feedback given by the faculties, although other researchers have stated varying time limits ranging from 8min-25min. [7, 9]

Feedback from students based on five points Likert scale showed that good number of students agreed or strongly agreed with OSVV in relation to "justice" to level of preparation, syllabus coverage, duration for answering, student friendly, relevancy of questions, avoidance of subjectivity/bias, recommendation for University exam, and fifty percent felt that difficulty level was well maintained which is found in accordance with similar study [17] reported from Thane, Maharashtra (2017).

Feedback from the faculties based on five points Likert scale showed that ,majority of the teaching faculties were in the opinion that, OSVV can be use to avoid bias, it is reliable, feasible, acceptable and can be recommended for the university examination which is found to be similar with the study [18] carried out by Shaguptha Shaikh in Mumbai (2015)

VI. Conclusion

From the present study it is concluded that, there was significant correlation between marks obtained by the students in these two formats of viva-voce. A perfect agreement was found between the two examiners as regard to allotment of marks in OSVV. Objectively Structured Viva Voce (OSVV) was found to be more reliable, feasible, acceptable and was preferred by the third semester students as well as the faculties when compared to Traditional Viva Voce. More over Objectively Structured Viva Voce (OSVV) was found to enable provision of feedback to students regarding their level of preparation and helped the faculty in identifying weaker areas, and scope for improvement.

Bibliography

- [1]. B. S. Bloom, M. D. Englehart, E. J. Furst, and D. R. Krathwol, in B. S. Bloom (Ed.), *Taxonomy of educational objectives: The classification of educational goals. Handbook I: The Cognitive Domain* (New York: David McKay Co Inc, 1956).
- [2]. K. Khilnani, J. Charan, R. Thaddanee, R. R. Pathak, S. Makwana, and G. Khilnani, Structured oral examination in pharmacology for undergraduate medical students: Factors influencing its implementation, *Indian J Pharmacol*, 47(5), 2015, 546-550.
- [3]. N. Rahman, S. Ferdousi, N. Hoq, R. Amin, and J. Kabir, Evaluation of objective structured practical examination and traditional practical examination, *Mymensingh Med J*, 16(1), 2007, 7-11.
- [4]. S. Khan, H. Acemoglu, and Z. Akturk, An objective structured biostatistics examination: a pilot study based on computer-assisted evaluation for undergraduates, *J EducEval Health Prof*, 9, 2012, 9.
- [5]. S. Ferdousi, S. A. Latif, M. M. Ahmed, and A. Nessa, Summative assessment of under graduate medical student's performance in physiology by structured oral examination, *Mymensingh Med J*, 16(1), 2007, 64-69.
- [6]. S. Hassan, Oral examination as objective structured authentic viva (OSAV), *Nishtar Med J*, 3(3 & 4), 2011, 35-40.
- [7]. P. V. Puppalwar, A. Rawekar, A. Chalak, A. Dhor, and M. P. Khapre, Introduction of Objectively structured viva-voce in formative assessment of medical and dental undergraduates in biochemistry, *J Res Med Edu Ethics*, 4(3), 2014, 321-325.
- [8]. S. K. Gor, D. Budh, and B. M. Athanikar, Comparison of conventional viva examination with objective structured viva in second year pathology students, *Int J Med Sci Pub Health*, 3(5), 2014, 537-539.
- [9]. P. K. Rangachari, The targeted oral, *AdvPhysiolEduc*, 28, 2004, 213-214.
- [10]. K. R. Shenwai, and K. B. Patil, Introduction of Structured Oral Examination as A Novel Assessment tool to First Year Medical Students in Physiology, *J ClinDiag Res*, 7(11), 2013, 2544-2547.
- [11]. J. Vankudre, B. D. Almale, M. S. Patil, and A. M. Patil, Structured oral examination as an assessment tool for third year Indian MBBS undergraduates in community medicine, *MVPJMS*, 3(1), 2016, 33-36.
- [12]. A. Jaleel, and N. Jaffrey, Perception of medical students on structured viva examination in an integrated undergraduate curriculum at Ziauddin University, *J Dow Univ Health Sci*, 4(1), 2010, 4-7.
- [13]. I. Haq, J. Higham, R. Morri, and J. Dacre, Effect of ethnicity and gender on performance in undergraduate medical examinations, *Med Educ*, 39(11), 2005, 1126-1128.
- [14]. R. Woodfield, S. Earl-Novell, and L. Solomon, Gender and mode of assessment at university: should we assume female students are better suited to coursework and males to unseen examinations? *Assess Eval High Educ*, 30(1), 2005, 33-48.
- [15]. S. Kelly, and R. Dennick, Evidence of gender bias in True-False-Abstain medical examination, *BMC Med Educ*, 9, 2009, 32.
- [16]. H. K. Shah, F. S. Vaz, and D. D. Motghare, Structured Oral Examination: From Subjectivity to Objectivity - An experience in Community Medicine, *J Educational Res Med Teach*, 1(1), 2013, 25-27.
- [17]. Poorva A Sule et.al, Comparative Study of Objective Structured versus Traditional Viva-Voce in Microbiology amongst Second-Year MBBS Students, *IOSR Journal of Research & Medical Education*, 7(3), 2017, 15-18
- [18]. Shaguphta T. Shaikh, Objective Structured Viva Examination Versus Traditional Viva Examination in Evaluation of Medical Students, *Anat Physiol Vol.5* (3), 2015, 1-3.

Dr.Rajendra Bhanudas Surpam, etal. "Comparative Study of Objectively Structured Versus Traditional Viva-Voce in Microbiology amongst Second-Year MBBS Students". *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 10(1), 2020, pp. 24-29.