

Full Length Research Paper

Evaluating the Impact of Oral Assessments on Theoretical Knowledge in Physiology

Sharmila Torke^{1*}, Reem Rachel Abraham¹, K. Ramnarayan² and K. Asha³

¹Department of Physiology, Melaka Manipal Medical College (Manipal Campus), Manipal 576104, Karnataka State, India.

²Department of Pathology, Melaka Manipal Medical College (Manipal Campus), Manipal 576104, Karnataka State, India.

³Department of Biostatistics, Melaka Manipal Medical College (Manipal Campus) Manipal 576104 Karnataka State, India.

Accepted 12 November, 2025

Viva voce examinations formed a part of theory component of final summative examination. Since Viva voce was conducted to all students irrespective of their passing status in theory, the exercise was found to be time consuming. In this perspective, this study was conducted to determine the impact of viva voce examination on student performance in the summative examination. Three batches of first year medical students were involved in this study. Their theory and viva voce scores in Physiology were reviewed. The ratio of theory to viva voce scores of final summative examination was compared between the passed and failed students of all three batches. Results indicated that there was no correlation between student performance in viva voce examination and that of theory. However, there was no difference in the mean ratio within the batches according to passing status.

Key words: Reliability, face validity, assessment.

INTRODUCTION

The *viva voce* or oral examination, a general non-patient based encounter between a candidate and one or more examiners has held an important place in medicine for centuries (Anderson et al., 1965). Oral examinations are appealing because of their high face validity, their flexibility, and the possibility that the measure aspects of clinical competence that are perhaps not tapped in written examinations. The reliability of the technique may be affected by various factors, such as the anxiety of the candidate, inconsistency of the rater, and various situational factors. However, reasonable reliability has been demonstrated with structured, standardized orals using hand-picked examiners.

Unfortunately oral examinations are prone to many

errors (Guilford, 1954). These include errors relating to halo effects (a judgment of one attribute influences judgments of others); errors of central tendency (judgments cluster in the middle); a general tendency towards leniency; and errors of contrast (judgments of a candidate are influenced by impressions of preceding candidates). *Viva voce* examinations tend to test at a low taxonomic level, for example factual knowledge rather than problem solving (Evans et al., 1966).

Oral examinations/*viva voce* examinations in our setup formed a part of theory component of each progress as well as final summative examination for the earlier batches. The *viva voce* marks contributed 10 out of the total 100 marks in theory. Since each batch had around 150 students, *viva voce* examination used to go on for a period of 3 to 4 days. Since all students had to take *viva voce* examination irrespective of their passing status in theory, the examiners found the exercise very time consuming and tiring, and stressful for the students as

*Corresponding author. E-mail: sharmilatorke@yahoo.com. Tel: 91-820-2571201 ext-22519. Fax: 91-820-2571905.

Table 1. Comparison of ratio of theory to *viva voce* marks between the passed and failed students.

Passing status		n	Mean ratio $\pm$ SD	t	P value
Ratio	1 (Pass)	357	1.04 $\pm$ 0.20	4.06	< 0.001
	2 (Fail)	40	0.87 $\pm$ 0.25		

Table 2. Batchwise comparison of ratio of theory to *viva voce* marks between the passed and failed students.

Passing status	Batch	n	Mean ratio $\pm$ SD
1 (Pass)	September 2002	111	1.06 $\pm$ 0.17
	March 2003	121	1.03 $\pm$ 0.17
	September 2003	125	1.02 $\pm$ 0.25
	Total	357	1.04 $\pm$ 0.20
2 (Fail)	September 2002	6	0.84 $\pm$ 0.20
	March 2003	21	0.81 $\pm$ 0.13
	September 2003	13	0.97 $\pm$ 0.37
	Total	40	0.87 $\pm$ 0.25
Total	September 2002	117	1.05 $\pm$ 0.18
	March 2003	142	1.00 $\pm$ 0.18
	September 2003	138	1.02 $\pm$ 0.26
	Total	397	1.02 $\pm$ 0.21

well. Many external examiners had reservations regarding the validity of such a *viva voce* examination. There were suggestions to restrict the *viva voce* examination to borderline which failed and distinction students. In this perspective, this study was conducted to determine the impact of *viva voce* examination on student performance in the final summative examination.

METHODS

Each student was assessed by two sets of examiners, each set consisted of an external and an internal examiner. Each student was provided with a viva card just before the oral examination while waiting for his or her turn. The viva card contained some relatively simple topics and the students used to prepare themselves for these topics mentally before facing the viva. The examiner would first start with these topics before deviating to other content areas. This was to put the students at ease before the viva. Each student was examined for about 10 to 15 min on an average. Each student was awarded the average of marks given by the two sets of examiners.

Data analyses

This was a retrospective review of the theory and *viva voce* scores of university examination in physiology of three batches of year 1 medical students (n = 397); batch 1- September 2002 admission

(n = 117), batch 2- March 2003 admission (n = 142), and batch 3- September 2003 admission (n = 138). The impact of *viva voce* scores on pass/fail of the students in the final summative examinations was assessed by correlating viva marks of each student with the scores on other components of the theory in the final summative examination. The theory and *viva voce* scores of the study sample in physiology were converted to a common denominator of 90. The ratio of theory to viva marks were taken and the same was compared between the passed and failed students using the independent samples t- test. A p value of less than or equal to 0.05 was considered statistically significant. Two way analysis of variance was used to see whether there is any difference in the mean ratio within the batches.

RESULTS

The ratio of theory to *viva voce* scores of final summative examination was compared between the passed and failed students of September 2002, March 2003 and September 2003 batches. The results are shown in Tables 1 and 2.

The mean ratio of theory to *viva voce* scores for the passed students of the three batches was 1.04 and the same for the failed students was 0.87 as shown in Table 1. It was observed that the mean ratio of theory to *viva voce* scores was greater than 1 for the passed students while it was below 1 for the failed students. The difference

in the mean ratio between the failed and passed students was observed to be statistically significant.

Using a two way ANOVA, it was observed that there was no difference in the mean ratio within the batches according to passing status as shown in Table 2.

DICUSSION

The viva voce/oral examination forms a component of the final summative examination in many medical schools. It is used for its flexibility and its potential for testing higher order cognitive skills (Wakeford et al., 1995). The face-to-face interaction between the student and the examiner no doubt provides a unique opportunity to test interactive skills, which cannot be assessed in any other way (Newble et al., 1987). But these skills are not usually the focus of attention and studies have shown that the majority of questions in *viva voce* examinations require little more than recall of isolated fragments of information. Further, oral examinations have some deficiencies in terms of reliability. Marks awarded to candidates by different examiners indicate low reliability between the ratings. Agreement between examiners is often poor (Thomas et al., 1993). There will be variation in questions asked from candidate to candidate. Also there is an inverse relationship between anxiety and performance in the oral examinations as stated by Holloway et al. (1967). Candidates who are less anxious perform better in the oral examinations. It is difficult to establish in any formal way how valid an oral examination is (Norman et al., 1985).

The *viva voce* examination may be appropriate to discriminate among the top students where higher order cognitive skills can be tested by an in-depth questioning. As a result it cannot be used alone to determine the ultimate passing or failing of any subject. One of the disadvantages of orals is that a relaxed, fairly eloquent but weak student may receive a better rating than his performance really warrants compared to a knowledgeable student who has difficulty in expressing himself. Our study revealed that the performance of passed students in *viva voce* was poorer than that in theory while the performance of failed students in *viva voce* was found to be better than their performance in theory. This indicates

that there is not much of a correlation between student performance in *viva voce* examination and that of theory. Due to these findings and also based on the external as well as internal examiners' feedback, the format of *viva voce* examination was modified. From March 2004 admission onwards, the *viva voce* examination is being conducted only for border line failed and distinction students.

Research on the reliability and validity of oral techniques has raised some interesting questions. The effects of examiner training may be one promising area of research. A second area for research might focus on what personality variables affect oral examination scores. A third area needing attention is the issue of whether performance on orals improves with the level of medical training. Orals are costly and logistically difficult to administer. More research is needed on what is being measured in order to justify using the technique for large numbers of candidates (Muzzin et al., 1985).

REFERENCES

- Anderson J, Roberts FJ (1965). A new look at medical education. London: Pitman Medical.
- Evans LR, Ingersoll RW, Smith EJ(1966). The reliability, validity and taxonomic structure of the oral examination. J. Med. Educ. 41: 651-657.
- Guilford JP (1954). Psychometric methods. New York: McGraw Hill.
- Holloway PJ, Hardwick JL, Morris J, Start KB (1967). The validity of essays and *viva voce* examining techniques. Br. Dental J. 123: 227-32.
- Muzzin LJ, Hart L (1985). Oral examinations In: Neufeld VR, Norman GR, eds. Assessing clinical competence. New York: Springer Publishing Company pp. 71-93.
- Newble D, Cannon R (1987). A handbook for medical teachers. 2nd edn. Lancaster: MTP Press.
- Norman GR, Muzzin LJ, Williams RG, Swanson DB (1985). Simulations in health sciences education. J. Instruct. Dev. 8: 11-17.
- Thomas CS, Mellsop G, Callender J, Crawshaw J, Ellis PM, Hall A, et al (1993). The oral examination: a study of academic and non-academic factors. Med. Educ. 27: 433-439.
- Wakeford R, Southgate L, Wass V (1995). Improving oral examinations: selecting, training, and monitoring examiners for the MRCGP.BMJ 311: 931-935.