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Research Article

Comparison between score recording in traditional method and indigenous technique during evaluation in viva voce

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ABSTRACT

Background: Viva voce which is integral part of practical examination plays important role in evaluation during practical examination in pharmacology. Existing traditional method has disadvantages of subjectivity, less accuracy, no documentary record of performance and is exhaustive for examiners.
Methods: In this study we compared a newly designed code conversion technique with traditional method of viva voce evaluation on second MBBS Pharmacology students. Those appearing for pre-university examination in the department were observed for both the methods of evaluation.
Results: It is observed that there were cases of overvaluation and undervaluation indicating subjectivity in traditional method evaluation while documentary recording and accuracy possible in code conversion technique.
Conclusion: Thus code conversion technique has potential to replace traditional method evaluation as it minimizes all disadvantages of traditional method to make fair and more accurate assessment of students during viva voce part of practical examination. The only drawback of prolonged result complication time can well be adjusted at the university end.

Keywords: Code conversion (CC) technique, Medical education technology, Practical examination, Viva voce

INTRODUCTION

Viva voce is a tool of assessment commonly used in various practical examinations, including Pharmacology. It permits students to exhibit their knowledge orally, and reflects his knowledge and understanding of subject, his thinking and problem solving ability.[1] Traditional Method (TM) of oral examination has disadvantages like inadequate standardization and non-reproducibility of results.[2] The type of learning behavior adopted by the students is determined by the type of assessment done by the teacher.[3] Score recording system in TM (i.e. asking the question and giving marks on answers, without any negative marking) invites subjectivity, bias and also deviates from accuracy. Three criteria for any tool of assessment are validity, reliability and objectivity.[4] Cobourne MT has also pointed out the problems in the TM of viva-voce.[5] Further he suggested the introduction of objectively structured clinical examination.[5] Therefore there is need of new technique of recording, to minimize these disadvantages. Thus our aim is to compare our indigenous coded technique with the conventional TM.

METHODS

This was a research in the area of medical education technology, and we adopted a non-interventional model of study design. MBBS second year, third term examinee (n=100) appearing in pre-university examination at the department of Pharmacology, were the subjects in this

research. Students were to appear for viva examination at three different places viz I, II, III. At the same time three investigators carried out recording of codes. After completion of examination decoding, final results were prepared. Table 1 the show coding-decoding system used.

Examinee in mid-way of their viva or whose code conversion record was incomplete, were excluded from study. As negative marking system didn't exist in university examination pattern, no negative marks to incorrect answers were awarded in TM as well as in CC. At the end of summation and final score, if the results obtained were in decimals, they were rounded to nearest upper figure as shown in Table 2.

Table 1: Coding system used for carrying out CC method.

Code	Carries meaning about answer	Conversion
1	Correct answer	1
x	Wrong answer	0
1/2	Correct but incomplete	1/2
•	Dot question - not answered	0
L+	Correct answer extracted	1
L-	Incorrect answer to clue hint	0
?	Correct but unclear	1/2

CC - Code conversion technique

Table 2: Showing examples of working with code conversion techniques.

Roll No.	Codes	No. of questions asked	No. of questions answered	Corrected score	Rounding	Out of
46	1 1 1, • • L+, 1 1/2, 1 1 1, 1/2	13	9	13.8	14	20
54	1/2, 1/2 x, 1 1 •, 1 1/2, • 1 •, 1/2, 1/2 1	14	7 1/2	5.4	6	10

Thus at the end of Examination we obtained final scores of each student for both methods viz. TM and CC. Scores so recorded were compared with scores of TM. For the comparison purposed we divided the students into five categories. (Table 3, 4, Figure 1) Other calculations were done to differentiate between two techniques, regarding their accuracy and attitude (liberal/strict) of examiners.

RESULTS

It is observed that 32% examinee constituted category A (less than 5% of difference between scores in two techniques) out of which 8 passed in TM against 6 in CC technique. In other categories comparative number of passers are shown in Table 3, 4 and Figure 1.

Table 3: Showing comparison between TM and CC technique during viva voce part of prelims practical examination in 32% of test subjects.

Places	Place I			Place II			Place III		
Category	**No.**	**Pass in CC**	**Pass in TM**	**No.**	**Pass in CC**	**Pass in TM**	**No.**	**Pass in CC**	**Pass in TM**
A-1	7	2	2	7	0	2	5	0	0
A-2	5	2	2	-	-	-	3	1	1
A-3	1	0	0	1	-	-	3	1	1
Totals	13	4	4	8	0	2	11	2	2

A1 - Overvalued 1-5%, A2 - Closely matched, A3 - Undervalued 1-5%, TM - Traditional Method, CC - Code conversion technique

Table 4: Showing comparison between TM and CC technique during viva voce part of prelims practical examination in other 68% of test subjects (Original).

Places	Place I			Place II			Place III		
Category	**No.**	**Pass in CC**	**Pass in TM**	**No.**	**Pass in CC**	**Pass in TM**	**No.**	**Pass in CC**	**Pass in TM**
B	6	2	4	9	1	3	7	4	6
C	9	1	9	7	1	3	12	2	9
D	6	4	3	5	3	1	-	-	-
E	2	1	0	2	2	2	3	0	0
Total	**23**	8	16	**23**	7	9	**22**	6	15

B - Overvalued 5-10%, C - Overvalued 10%, D - Undervalued 5-10%, E - Undervalued 10%, TM - Traditional method, CC- Code conversion technique

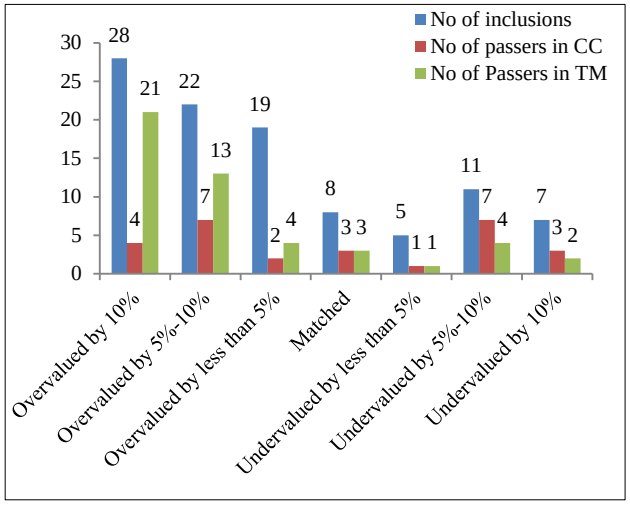

Figure 1: Showing comparison of scores by code-conversion technique with traditional method (Original).

At place I, 36 students appeared for viva, of which, 20 passed in TM whereas 12 passed by CC technique. This amounts to be a 40% more passing by TM. At place II, 31 students appeared for viva, of which 11 passed in TM whereas 07 passed by CC technique. This amounts to be a 36.3% more passing by TM. And at place III, 33 students appeared for viva, of which 17 passed in TM whereas 08 passed by CC technique. This amounts to be a 53% more passing by TM. Thus At each place TM gave more passing rate, and we have labeled these students as beneficiary by TM.

However, we also found 04 (two each at place I, II) students, who failed by TM but passed by CC. We can label these students as affected by TM. Thus beneficiary: affected ratio of 6.25 (5, 3 and 9 at places I, II, and III respectively) indicated liberal valuation by TM (Table 5).

Table 5: Showing comparison between TM and CC technique during viva voce part of prelims practical examination reflecting attitude of examiners (Original).

Comparison between TM and CC			
% Difference in passers	40	36.3	53
No. affected in TM	2	2	0
Beneficiary: affected ratio	10:2	6:2	9:0
% passers in CC	33.3	22.6	24.25

TM - Traditional method, CC - Code conversion technique

DISCUSSION

The accuracy of scores and advantage of preservation of written record are other important advantages of CC technique. These two properties impart CC technique, reproducibility of scores. We suggest further modification wherever possible about preparation of question cards using question bank and utilizing the services of invigilators, for assuring the integrity of examiners.

In this study, answer extracted by clues and hints were awarded full mark, considering depth of subject and examinee's anxiety state. Negative marking was not incorporated for sake of better comparison between two methods. However, it can be included with instruction (i.e. -1/4 mark for wrong answers against codes 'x' and 'L-'). This indigenous CC technique will be little more time consuming during result compilation.

Looking at the number of passers in total of A categories, it is evident that in 32% of the test subjects CC technique is comparable with that of TM. It means that of the remaining 68%, subjectivity/biasness/impaired assessment is giving advantage to 64%. The other affected 4% are the subjects who passed in CC technique were actually failed in TM, possibly due to fatigue/lack of concentration on part of examiners.

Undue advantage of overvaluation in 64% of beneficiaries could not be given to 4% affected, and 32% subjects of categories A. This is because; it becomes difficult to calculate the difference of marks which can be added to their scores.

Moreover as there is no question-wise answer record in TM, it becomes impossible to reproduce the performance in cases of mismatches between theory and practical exam scores. Record preservation and referring to it whenever required is possible in CC technique.

In a cross sectional study done by Rehana et al., the feedback response from students on perception of TM method of viva voce to be affected 90% by mood and fear of examiner.[6] It can The more number of passers in TM clearly indicates lenient and non-serious approach or tiredness on part of examiners. This can cause a downfall in must know aspect in students, leading to down-gradation of standards.

Teaching pharmacology to the medical students differs from teaching it to the science/pharmacy students. Medical students have to learn not only about the mechanism of action of the drugs, but also have to correlate the knowledge with human ailments and the practical use of many therapeutic compounds.[7] We think the indigenous CC technique can give us a better assessment of student about such correlation.

Number of affected test subjects in TM reflects that this existing primitive method is also not fool proof in favor of students as some of deserving students may not qualify for passing in viva-voce. Beneficiary: affected ratio reflects adverse attitude affecting justice. The percent passers in CC technique reflect in true sense the standards of cognitive domain developed in the batch.

Limitations

In this study design, answer extracted by clues and hints has been given full marks considering depth of subject and examinee's anxiety state. Negative marking not incorporated for sake of better comparison between two methods in existing situation. Also that this indigenous CC technique will be little more time consuming during result compilation which can be overcome by engaging skilled manpower. However our indigenous method is less time consuming and less costly, than what other researchers viz. Gamal et al. and Cobourne has suggested (ViPSCE & OSCE).[5,8]

Subjectivity and biasness can further be minimized by using token numbers and asking the set of questions from the pre-formed numbered cards.

Alternately question bank can be kept in computer, which will display the question-set randomly for each examinee.

CONCLUSION

In conclusion, this new self-designed CC technique provides standardization, accuracy, minimizes subjectivity with major advantage of preservation of documentary evidence and therefore reproducibility of performance of oral examination.

All three criteria for test and test scores i.e. validity, reliability and objectivity can be improved thus promising to replace the ongoing traditional method.

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