Original Article

Awareness amongst Dental School Evaluators Regarding On-Screen Evaluation: An Questionnaire survey

Anshula Neeraj Deshpande[1], Hemchandra Chintamani Pradhan[2], Mandira Sikdar[3], Neeraj Deshpande[4], Aishwarya Jain[5], Yash Shah[6]

[1]Department of Paediatric and Preventive Dentistry; [4]Department of Periodontics; [5,6]Postgraduate student, K.M. Shah Dental College and Hospital, Sumandeep Vidyapeeth (Deemed to be University), Vadodara, Gujarat, India; [2]Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research, V.N. Purav Marg, Mankhurd, Mumbai, Maharashtra, India; [3]School of Science and Engineering, Navrachana University, Vadodara, Gujarat, India

ABSTRACT:
Background: The Web-based evaluation is an effective solution for mass educational evaluation. Advances in computer technology continue to make a difference for evaluators. It is the system where the answer sheets are scanned and PDF is created, which is then uploaded in the software for evaluation. **Methods**: It is a cross-sectional questionnaire study. This study was conducted to determine the acceptance towards On-screen evaluation system and the problems faced during it by dental educators. The questionnaire was formulated as google form and was circulated through email to various dental educators all over India. They were asked to fill this form online. Data collected was analysed using descriptive analysis. **Results**: Total of 125 dental evaluators responded to the survey, wherein 41 evaluators had a chance to do OSE. Out of which 87.8% mentioned that results were more accurate 36.6 % complained about strain to eyes and 5% about neck strain, 63.4% stated that evaluation was done at evaluation centres provided by universities. **Conclusion**: A secure on-screen evaluation system in medical sciences is must in today's digital society and the upgradation in the universities is of utmost important.
Key words: On-screen evaluation, Traditional evaluation system, dental evaluators, Digital evaluation system (DES).

Corresponding Author: Dr. Anshula Neeraj Deshpande, Department of Paediatric and Preventive Dentistry, K.M. Shah Dental College and Hospital, SumandeepVidyapeeth (Deemed to be University), Vadodara, Gujarat, India

INTRODUCTION:

On-Screen Evaluation (OES) is a form of e-marking widely applied in different countries, such as China, the UK, and the USA (Zhang, Powers, Wright, & Morgan, 2003). On- screen evaluation is the system where the answer sheets are scanned and PDF is created, which is then uploaded in the software for evaluation.[1] There are different software's available with various features incorporated like marking annotations, panel of marks, tabulation and totalling of marks.

The Web-based evaluation is an effective solution for mass educational evaluation.[4] Advances in computer technology continue to make a difference forevaluators. One of the exciting new ways to use Information and communication technology (ICT) in education is in testing.[2] There is a need for onscreen evaluation in all the medical sciences universities. So, we are conducting a survey to assess your perception for the same.[3]

Like all methods, OES may have strengths and weaknesses, and studies suggest throughout that OES shouldbe considered in conjunction with other approaches within assessment strategies. If used appropriately, OES can be a powerful and fruitful way to enhance the newer technology which can save time and flexibility about the evaluation centres.[4]

The aim of the present study is to quickly asses acceptance towards On-screen evaluation system, as well as to determine the problems faced during OSE by dental educators through a questionnaire.

OBJECTIVE:

1) To evaluate the various problems faced by evaluators for OSE.
2) To assess the need for training of OES.

METHODOLOGY:

It is a cross-sectional questionnaire study. This study was conducted to determine the acceptance towards On-screen evaluation system and the problems faced during it by dental educators.

For the study purpose, questionnaire based proforma (Annexure I) was verbalized. The Dental Educators all over India with more than 6 years of experience andalsorecognized university examiner were included for the study. The questionnaire was formulated as google form and was circulated through email to various dental educators all over India. They were asked to fill this form online. Data collected was analysed using descriptive analysis. The collected data was entered in the master chart prepared on the computer using Microsoft Excel 2007.

QUESTIONNAIRE-- ON SCREEN EVALUATION SYSTEM: OPPORTUNITIES &CHALLENGES

1) Have you ever done On-screen Evaluation of answer books? *
   a) Yes
   b) No

2) Did you receive any training for the same on prior basis?
   a) Yes
   b) No

3) You were provided training for the same by
   a) University Centre
   b) Distance-Learning
   c) Self-Learning
   d) No Training

4) Do you know about various software which are used for On-screen Evaluation?
   a) Yes
   b) No

5) What barriers did you face during On-screen evaluation?
   a) Strain to eyes
   b) Time consuming
   c) Difficulty in understanding mechanism of software

6) Where was the evaluation done?
   a) At the evaluation Centre
   b) At your own location

7) Was moderation easier than the physical evaluation system?
   a) Yes
   b) No

8) What difficulties did you face in obtaining the scan copies of answer sheets?
   a) Slow Internet connection causing difficulty in download
   b) Poor scan quality

9) Was the identity of student disclosed during On-screen evaluation?
   a) Yes
   b) No

10) Was result generation more accurate in onscreen evaluation than physical examination?
   a) Yes
   b) No

11) Was re-evaluation more simplified than physical evaluation?
   a) Yes
   b) No

12) Do you feel the need of prior training for On-screen evaluation?
   a) Yes
   b) No
   c) Maybe

RESULT:
Total of 125 dental evaluators were contacted out of which 84 (67.2%) stated that they never had a chance to do OSE wherein 41(32.8%) responded to the survey conducted.
Table1 illustrates all the items of questionnaire tool with Yes/ No type of responses which states that 80.5 % dental educators didn't receive prior training, 78% were not aware of various software being used, and 87.8% mentioned that results were more accurate.

TABLE 1: TABULAR FORM FOR RESPONSES OF YES/NO TYPE:

ITEM	YES n (%)	NO n (%)
Did you receive any training for OES priory?	8(19.5)	33(80.5)
Do you know about various software used for OES?	9(22)	32(78)
Was moderation easier than the physical evaluation system?	28(68.3)	13(31.7)
Was the identity of student disclosed during OSE?	2(4.9)	39(95.1)
Was result generation more accurate in OES?	36(87.8)	5(12.2)
Was re-evaluation more simplified than physical evaluation?	38(92.7)	3(7.3)

Table 2 illustrates that all the items of questionnaire tool with multiple responses states that 67.8% dental educators felt the need for prior training, 56.1% complained for not being provided with the training, 63.4% stated that evaluation was done at evaluation centers provided by universities.

TABLE 2: TABULAR FORM FOR MULTIPLE RESPONSES QUESTIONS:

ITEM	N (%)
How you were provided training for the same by?	
a) University centre	10 (24.4)
b) Self Learning	8 (19.5)
c) No Training	23 (56.1)
What barriers did you face in OES?	
a) Strain to eyes	15 (36.6)
b) Time consuming	17 (41.4)
c)Difficulty in understanding mechanism of software	11 (22)
Where was the evaluation done?	
a) At the evaluation Centre	26 (63.4)
b) At your own location	15 (36.6)
What difficulties did you face in obtaining scanned copies of answer sheet?	
a) Slow Internet connection causing difficulty in download	22 (54.0)
b) Poor scan quality	12 (29.0)
c) Other (neckstrain, sometimes missing sheets)	2 (5.0)
d) no difficulty	5 (12.0)
Do you feel the need of prior training for OES?	
Yes	27 (65.8)
No	5 (12.2)
Maybe	9 (22.0)

DISCUSSION:
Computer-based evaluation also can beused for diagnostic, formative or summative assessment. This can take place locally or at a center allocated by universities, using Internet. But there are both advantagesand disadvantages with using on-line or computer-based assessment.[5]

A) Adoption of OES
Total of 186 dental colleges in India, very few of themprovide facility of OSE (table 3). OSE has come into process/action 2-3 months back.According to survey conducted, 12 colleges serve the facility of on-screenevaluation.

TABLE 3: List of universities providing OSE

1.	Rajiv Gandhi University of Health Sciences (RGUHS), Bangalore
2.	Dr Ram Manohar Lohia Awadh University, Ayodya, Uttar Pradesh
3.	Sri Balaji Vidyapeeth, Deemed University
4.	Datta Meghe institute of Medical Sciences, (DMIMS)Nagpur
5.	Manipal Academy of higher education, Manipal university
6.	Dr. N.T.R University of Health Sciences, Vijayawada, ANDHRA PRADESH
7.	Baba Farid university of health sciences, Punjab
8.	NITTE university, Mangalore, Karnataka
9.	Madhya Pradesh medical science university, Jabalpur, Madhya Pradesh
10.	Sri Ramachandra Medical College & Research Institute, Deemed University,Porur, Chennai, India
11.	KalojiNarayana Rao university of health sciences, Telangana
12.	Dr. M.G.R Medical University, Tamil Nadu

B) Benefits of OES:

Computerized marking is not prone to human error,so there are very less chances for moderation becomes easier. It Saves time in terms of supervising and marking (including double marking) assessments.In terms of re-evaluation also it becomes easier (as there is no to and fro of answer books).

A major disadvantage of using paper assessments is the high cost associated with the process. The number of personnel involved as well as the printing, distributing, scanning, rekeying, filing and archiving is very costly. When institutions move to an online system these significant costs can often be reduced by at least 50 percent. Also, the dispatching cost of answer-books will be reduced.[7]

Frohlich (2000) stated thatthe move from traditional teaching environments and examination settings presents additional issues relating to security.[8]Tannenbaum (1999) defines security in computer systems as, Individual who is not authorized cannot have access towards the answer-books.[9] In traditional environments it is possible to ensure the security of the answer-books, this includes the transportation to and from the exam venue. So, having on-screen evaluation will not hinder the security of the answer-books. As, our survey says 97.5% evaluators dint face any problem regarding disclosing of identity of student or answer-books. Encryption techniques can be used to ensure the security of the answers when transmitting data over the Internet.

There is no evidence to suggest that the integrity of the examination is more compromised by on-screen evaluation than paper-based evaluation. Also, records of results can be stored centrally.[6]

The process of administering paper-based assessments is a lengthy one. It can take several months to complete the cycle from administering the forms to collecting and analysing the results, to sharing reports and acting on the feedback obtained. As instructors do not receive results quickly, valuable time is lost, which can be helpful in faster administrative process.[7]

The results are not influenced, as there are two moderators the marks given by the primary moderator won't be visible to secondary moderator. Hence, it won't be biased result.[5]

C) ON-SCREEN VS PHYSICAL EVALUATION:It is
reallyimportant to understand the difference between on-screen evaluation and physical evaluation on the basis of time, location, feasibility and marking annotations.[6\]

D) Training and Awareness:

New assessment techniques will continue to emerge as technology and teaching methods change and develop, therefore continuing research will be required to determine the effectiveness of OSE and also Training for the same.[6]Training should be provided by universities itself or a special programme can be conducted over the same. Knowledge about various software related to OES should be provided.

For all dental educators to be trained about this, awareness needs to be created for it. All the universities should start providing such facilities as it saves time, as well as cost effective. On screen evaluation should be made available in the department itself as it will save time of dental educator in travelling in premises.

ON-SCREEN EVALUATION	PHYSICAL EVALUATION
OSE ELIMINATES PHYSICAL HANDLING.	Physical Answer sheet handling is done at various stages.
EXAMINER CAN CHECK FROM ANY LOCATION.	Examiner Need to travel to central place
SYSTEM AUTOMATICALLY FEEDS MARKS	Manual Marks entry & totalling takes time.
MASKING PROCESS IS SIMPLIFIED DURING SCANNING PROCESS TO HIDE STUDENT'S IDENTITY	Masking process is time consuming and done manually.
MODERATOR CAN EASILY RE-CHECK DIGITAL ANSWER SHEET.	Moderator Need to travel and re-evaluate
SCAN COPY IS ALWAYS AVAILABLE AND EASY TO SEARCH	Student Request for photo copy of answer sheet tedious task.

E) Barriers in OES:

36.6 % dental evaluators expressed problem for eye strain occurred after marking on the screen for a longer time. This disadvantage might risk the evaluators of relatively older age. Literature also saysEye tiredness would indeed appear to be a persistent problem and is one of main physical barrier. [1]Around 5% people also complained about neck strain and problem about missing sheets of the answer book. Due to missing of answer sheets the reports recorded in on-screen evaluation was not accurate and can't be trusted.[1]

Around 54% evaluators mentioned the problem about poor internet quality in downloading answer-book.Which consumed time of the dental evaluators. Around 29% evaluators complained of unclear images of scanned scriptsimproving computerscreen resolution. Whereas this was a technical issue, existing research suggests theissue is likely to induce risks of lowered reliability, which should be closely monitored inpublic examinations (Black, 2010).[1,2]

65% Dental educators felt the need of prior training about IT skills to evaluate the answer books on-screen.[5]

F) Future direction:

Not much of research is done on on-screen evaluation used in medical sciences, this practice of evaluation should be inculcated in maximum universities as it will benefit the universities and the evaluators. This can also support in trackingstudents' responses and progress of each overtime. There is need to train the staff and, adaptation of technology is required at university level.

Sensitization of evaluators to the OSE systems, Stepwiseupdatingof armamentariumand technology would aid in achieving the upgradation in evaluation system.

CONCLUSION:

A secure on-screen evaluation system in medical sciences is must in today's digital society. By deploying efficient OES, resources like time, energy to evaluate every single answer sheet and the need to use paper is reduced. The proposed system has been also tested in real environment at various dental universities. It was observed that the proposed system is efficient and robust.

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