



ORIGINAL ARTICLE

Effectiveness of “fill in the blanks” over multiple choice questions in assessing final year dental undergraduates

R.M. Sumudu Himesha B Medawela^{a,*}, Dugganna Ralalage Dilini Lalanthi Ratnayake^b,
Wijeyapala Abesinghe Mudiyanse Udari Lakshika Abeyasinghe^b,
Ruwan Duminda Jayasinghe^a, Kosala Nirmalani Marambe^c

^a Department of Oral Medicine and Periodontology, Faculty of Dental Sciences, University of Peradeniya, Peradeniya, Sri Lanka

^b Department of Oral Pathology, Faculty of Dental Sciences, University of Peradeniya, Peradeniya, Sri Lanka

^c Medical Education Unit, Faculty of Medicine, University of Peradeniya, Peradeniya, Sri Lanka

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KEYWORDS

Fill in the blanks;
Multiple choice
questions;
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Effectiveness

Abstract

Background: Possibility of guessing in Multiple Choice questions (MCQ) when assessing undergraduates is considered a weakness. There are limited studies on the use of “Fill in the Blanks” (FIB) to overcome this issue.

Objective: To assess the effectiveness of FIB in MCQ for assessing final year dental undergraduates.

Methods and materials: A total of 134 final year dental undergraduates were randomly assigned to Group A and B. Group A was given a questionnaire with fifteen single best answer MCQ questions, and then the FIB questionnaire (which included the same questions in FIB form). At the same time Group B was given the FIB questionnaire initially, and then the MCQ questionnaire in the given period of time. The mean scores of the two groups were then compared.

Results: Group A obtained a mean score of 10.94 (SD ± 3.203) for MCQ, and 10.48 (SD ± 2.993) for FIB, whereas Group B obtained a mean score of 6.8 (SD ± 2.949) for FIB and 10.05 (SD ± 2.619) for MCQ. There was a statistically significant difference in the mean scores obtained for the two types of tests between Group A ($P = .04$) and Group B ($P = .0001$). The difference in the mean scores obtained for the FIB were statistically significant ($P = .0001$) between the groups, whereas the results were not statistically significant for MCQ ($P = .127$).

* Corresponding author.

E-mail addresses: sumuduhimesha@gmail.com, sumuduhimesha@pdn.ac.lk (R.M.S.H.B. Medawela).

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PALABRAS CLAVE

Rellenar los espacios en blanco;
Preguntas de opción múltiple;
Valorar;
Eficacia

Conclusion: MCQ results revealed that the knowledge of the two groups was similar. The differences in the scores obtained for the two types of assessment tools suggest further research is needed to investigate the factors that led to the above observation.

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La eficacia de «rellenar los espacios en blanco» sobre las preguntas de opción múltiple en la evaluación de estudiantes de último año de odontología

Resumen

Antecedentes: Posibilidad de valorar si las preguntas de opción múltiple (MOM) son el punto débil cuando se evalúa a los estudiantes de último año. Hay estudios limitados sobre el uso de «rellenar los espacios en blanco» (REB) para superar este problema.

Objetivo: Evaluar la eficacia de REB sobre MOM en la evaluación de los estudiantes de último año de odontología.

Métodos y materiales: Se asignó aleatoriamente a un total de 134 estudiantes universitarios de último año de odontología a los grupos A y B. Al grupo A se le entregó un cuestionario con 15 MOM para seleccionar la mejor opción y luego un cuestionario REB (que incluía las mismas preguntas con planteamiento REB). Al mismo tiempo, al grupo B se le entregó el cuestionario REB inicialmente y luego el cuestionario MOM en el período de tiempo determinado. A continuación se compararon las notas medias de los 2 grupos.

Resultados: Un grupo obtuvo una puntuación media de 10,94 (DE \pm 3,203) en MOM y de 10,48 (DE \pm 2,993) en el REB, mientras que el grupo B obtuvo una puntuación media de 6,8 (DE \pm 2,949) en el REB y de 10,05 (DE \pm 2,619) en el MOM. Hubo una diferencia estadísticamente significativa entre las notas medias obtenidas de los 2 tipos de pruebas entre el grupo A ($p=0,04$) y el grupo B ($p=0,0001$). La diferencia en las notas medias obtenidas del REB fue estadísticamente significativa ($p=0,0001$) entre los grupos, mientras que los resultados no fueron estadísticamente significativos en el MOM ($p=0,127$).

Conclusión: Los resultados del MOM revelaron que el conocimiento de los 2 grupos era similar. Las diferencias en las notas obtenidas de los 2 tipos de instrumentos de evaluación sugieren que se necesita más investigación para analizar los factores que llevaron a la reflexión anterior. © 2017 Elsevier España, S.L.U. Este es un artículo Open Access bajo la licencia CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Assessment of students' competencies is fundamental in the undergraduate education. The term 'competence' is defined in medicine as "the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individuals and communities being served".¹ A set of criteria for the evaluation of assessment methods are defined in the literature. These include reliability, validity, impact on future learning and practice, acceptability to learners and faculty and Cost to the individual trainee, the institution, and society at large.² One such method of assessment fulfilling these criteria not only provides an index for the evaluation of student's competencies but also provides a feed back to the students, which results in improvement of dental education.³ The method of educational assessment seems to affect student learning approaches and influence the performance of the students.

Use of Multiple choice questions (MCQ) is widespread in both formative and summative assessments. MCQ is a form of assessment in which respondents are asked to select the

best possible answer or answers out of the choices from a list. Multiple choice tests were developed initially by the psychologist Edward Thorndike (1874–1949). However the first all multiple choice large scale assessment was the assessment of the intelligence and more specifically the aptitudes of World War I military recruits in Army Alpha. There is a long standing criticism on validity of MCQ as it tests only the cognitive knowledge which lies on the lowest level of framework for assessing clinical competence proposed by famous psychologist George Millers in 1990.^{2,4} However the best answer MCQs used on common merit exam are scenario based and require application of knowledge and problem solving. Researches in medical education are in search of assessment options to overcome above issues arisen in assessment with MCQ. Extended matching question, two tier MCQs are some of them.

However "fill in the blanks" type questions, which has a structural similarity to MCQ (As both have short answer of one or few words) is more objective and overcome some of the disadvantages of MCQs such as possibility of guessing an answer. Guessing could be eliminated in fill in the blanks as they do not provide options for the student and student who

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