

Original article:

Encouragement and Challenge for Lecturers at Faculty of Medicine in Writing MCQ Questions

Afridatul Luailiyah¹, Gandes Retno Rahayu², Mora Claramita³

Abstract:

Objective: to explore factors that was being a challenge and an encouragement for lecturers in writing MCQ questions. **Methods:** This was a content analysis qualitative research. Determination of the research subject was done with a maximum variation purposive sampling that was choosing faculty of medicine at states university with an A accreditation, and faculty of medicine at private university with a B accreditation. Then research subjects was selected from each of these institutions with variations in teaching time, clinical and non-clinical lecturers, active and not active in writing MCQ questions. The amount of research subject was 16. The results of the interview were transcribed and conducted with an open coding using Open Code 4.3 program by a researcher and a research assistant. Coding results were analyzed using a thematic analysis approach. **Results:** Results from the qualitative analysis showed factors that was being an encourage for lecturers in writing MCQ questions were the fulfillment of basic needs such as an autonomy, competence, relatedness, and religiosity. While the factors that was being a challenge for lecturers were not fulfilling these basic needs. **Conclusions:** Autonomy, competence, relatedness, and religiosity were basic needs that was influence lecturers in writing MCQ questions. If the institutions aimed to conducted appropriate development programs for lecturers, they must pay attention to the basic human needs of life such as autonomy, relatedness, competence and religiosity.

Keywords: Encouragement in writing MCQ questions, challenge in writing MCQ questions, Self- determination Theory, Assessment

*International Journal of Human and Health Sciences Vol. 04 No. 02 April'20 Page : 120-127
DOI: <http://dx.doi.org/10.31344/ijhhs.v4i2.187>*

Introduction

Multiple Choice Question (MCQ) is one of the multiple choice assessments that is often used in the assessment of medical students. MCQ has many advantages if written well, among others. It can be used to test students in large numbers, it also can be used to test wide knowledge contents. This assessment is accurate and consistent compared to other types of assessments.¹

Most writers find it difficult to make good MCQ questions, so the results of MCQ only tests a simple knowledge. It is only a repetition of facts and it is not a problem analysis.² Although the principles of writing effective MCQ questions

have been widely publicized but violations of the principles of writing questions MCQ is common in medical education.³ Writing MCQ is difficult and requires a long time, even for lecturers who have attended MCQ question writing training.⁴ Based on previous research, it was found that bad MCQ questions are often used during Faculty examinations. The quality of MCQ questions becomes poor when the author does not follow the standard principles of writing questions and lack of attention in the process of writing questions.²

There are several things that are suspected to be the cause of bad written MCQ questions,

1. Afridatul Luailiyah, Lecturer, Parasitology Department at Faculty of Medicine, Sultan Agung Islamic University, Semarang.
2. Gandes Retno Rahayu and Mora Claramita, Lecturers, Medical Education Department at Faculty of Medicine, Public Health and Nurse, Gadjah Mada University, Yogyakarta

Correspondence to: Afridatul Luailiyah, Department of Parasitologi, Faculty of Medicine Universitas Islam Sultan Agung, Semarang, Central Java, Indonesia. **Email:** dr.afrida06@gmail.com

including a lack of commitment from lecturers to prepare MCQ exam questions, lecturers have not received training to make MCQ questions and only a few lecturers have made strong preparations and have strong knowledge about writing a good MCQ.² Faculty of Medicine lecturers have a dual duty, apart from being teaching staff they also have the responsibility of being clinicians who provide care to patients and as researchers.⁵ Previous research related to encouragement and challenge faced by lecturers when teaching have been widely studied, but it is still minimal that it is necessary to conduct more specific research on the factors that challenge and encourage lecturers in writing MCQ questions. Writing MCQ questions is one of the tasks of teaching. But the encouraging and challenging factors in the teaching field are generally the same as the ability to make MCQ questions. Therefore, it is necessary to investigate further on what are the factors that encourage and challenge lecturers in writing MCQ questions. The purpose of this study was to explore the factors that challenge and encourage the lecturers in writing MCQ questions.

Materials and Methods

This content analysis approach qualitative research was conducted at the Faculty of Medicine in Indonesia with the inclusion criteria as faculty of medicine at states university with an A accreditation, and faculty of medicine at private university with a B accreditation. The research subjects were taken with a maximum variation purposive sampling approach with variables: state and private university status, clinical and preclinical departments, length of teaching less than 5 years and more than 5 years and active or not actively making questions. Each subject was taken for in depth interview. Characteristics of research subjects can be seen in table ¹ Research data were collected by in depth interview of the research subjects. The results of the interview were transcribed at the end of each interview. The results of the transcripts were analyzed by the researchers, then the existing coding were grouped into themes and emerged sub themes. The coding determination was done by researchers and research assistants. Coding was conducted by Open Code Software version 4.3. The results of coding from researchers and research assistants were to conduct discussions to determine the coding used. Research assistants were medical education graduates who have conducted qualitative research.^{6,7,8,9,10}

Table 1. Characteristics of Research Subjects

Status	Clinical Lecturers				Non Clinical Lecturers				Total
	Active		Non active		Active		Non active		
	<5th	>5th	<5th	>5th	<5th	>5th	<5th	>5th	
States university	1	1	1	1	1	1	1	1	8
with an A accreditation									
Private university with a B accreditation	1	1	1	1	1	1	1	1	8

Efforts to achieve credibility in this research were carried out in several ways including triangulation of sources of the assessment sections, presenting results using verbatim, member checking to respondents, and peer debriefing related to the results of coding with research assistants. Efforts were made to write a research report in detail, clearly, systematically, and reliably. Confirmability of this study was carried out by writing in full how the researchers in obtaining themes from all interview transcripts that were obtained.^{6,7,8,9,10} This study was approved by the Gajah Mada University Ethical Committee.

Results

The challenging factors among the lecturers in writing MCQ questions were the basic needs such as autonomy, relatedness and competence were not fulfilled. The low commitment of lecturers in learning is part of the autonomy of lecturers who are the most complained about. Lecturers' commitment in learning includes low commitment to write questions and poor time management. This commitment was what drives lecturers to carry out their work properly or not. This low commitment was influenced by the difficulty of lecturers in writing MCQ questions. The difficulty of lecturers to write MCQ questions were due to the rules in writing MCQ questions and the difficulty of writing five homogeneous answer

choices . The rules for writing MCQ questions made many lecturers complained when they had to write MCQ. The difficulties experienced by lecturers during the writing of MCQ cannot be separated from the lack of competence of lecturers in writing MCQ questions.

Another challenge complained that there were many responsibilities that the Faculty of medicine lecturers have. Faculty of medicine lecturers had responsibilities in the fields of teaching, research, and medical services. These responsibilities made the lecturers have less time to write MCQ questions. Especially if they are involved in structural management, then there will be less time to write questions. Other factors that challenge lecturers in writing MCQ questions can be seen in table 2

Table 2. Factors that challenge lecturers in writing MCQ questions

Theme	Category	Σ Coding
1. <i>Autonomy</i>	Limited material	2
	The commitment of lecturers in learning is low	6
2 <i>Compe- tence</i>	Low competence in writing questions	3
	The lecturer development program is uneven	1
	Hard in writing MCQ questions	5
	Not according to competency	2
	Backup lecturer	3
3. <i>Related- ness</i>	Poor facilities	7
	Poor communication	6
	Poor team work	8
	Poor management in writing questions	7
	Health problem	1
	Multitasking	3
	No feedback	2
	No award	3
	No obligation	1

Encouragement factors in writing MCQ questions consist of Autonomy, Competence, Relatedness, and Religious. High commitment in writing questions is the main factor that drives lecturers to carry out their duties in writing MCQ. This commitment is not obtained just like that but it is influenced by many extrinsic things. The material that is determined together with the block team makes the lecturer able to make questions in accordance with the competencies that medical students must have.

The existence of lecturer development programs that are designed effectively and regularly held has an effect on the competence of doctors in writing MCQ

questions. Lecturers who have good competency in making MCQ questions tend to get various achievements related to questions that have been made. Professionalism also encourage lecturers to carry out their duties properly in writing MCQ questions.

A good team work in the department makes the work atmosphere conducive. Good communication when giving feedback, good appreciation, and the existence of a clear schedule for writing questions is a linking factor that encourage lecturers in writing MCQ questions. Other factors that encourage lecturers in writing MCQ questions can be seen in table 3

Table 3. Factors that encourage lecturers in writing MCQ questions

Theme	Category	Σ Coding
<i>Autonomy</i>	Material autonomy	4
	Time autonomy	3
	High commitment of lecturers in education	5
<i>Compe- tence</i>	Lecturer development programs	3
	Good competence in writing questions	8
	Lecturer Achievement	3
	Student Achievement	4
	Professionality	5
	Competency	1
<i>Related- ness</i>	Assessment system policy	5
	Good team work	3

	Policy involvement	3
	Facility availability	11
	Good communication	2
	Length of work	2
	Student encouragement in studying	4
	Giving feedback	6
	Arrangement about writing schedule	5
	Good award	5
Religious	Sincerity	3
	Obedience	4

Table 4 Encouragement and Challenging factors in writing MCQ questions.

Kategori	Verbatim
Low commitment of lecturers	<p>“No, because the questioning is time-related, so even though there is time, if we are lazy to make questions then we will not make questions” (3Kts respondent).</p> <p>“Laziness hinders the process of writing questions.” (8Nts respondent)</p>
Multitasking	<p>“Business. Because if one course credit is counted from the teaching process until writing questions, then the clinical doctor will feel heavy. This is because the clinical doctor’s job is not just about writing questions. So there is a lot of additional work in the service that makes time run out, making it difficult to fulfill the obligations of 1 course credit.” (4Ktn respondent)</p>
Backup lecturers	<p>“In addition, when I asked to write questions where I did not give the material in lectures, it also added to the difficulty. So I had to know what material was given and lectured at the time. That made me lazy if I should made questions</p> <p>that the material was given by others lecturer.” (5Ntn respondent)</p>
High commitment	<p>“So I have to work until late at night. This is because my job as a clinical doctor, so if I fill in the morning lectures, then after that I have to do clinical practice and complete obligations at the hospital, then at night do clinical practice at another hospital. So I went home at 9 pm This caused me to coordinate with the question-making team if I would send the question at 12 o’clock at night.” (1Kan respondent)</p>

Lecturer development programs	<p>“I thought that I was happy if I wrote the questions at the base camp. At that time accidentally I was in the obsgyn department where there were outdoor activities every 6 months. Lecturers were collected and given a refreshing about writing questions. Maybe it was good for each department to make an outdoor activities to make questions.” (3Ktn respondent)</p>
Religious	<p>“Charity that is not interrupted until the end of life is useful knowledge. When I taught and students can took advantage of what I said, then that was enough</p>

	<p>for me, because God will replace it with uninterrupted blessings until the end of my life.” (2Kas respondent)</p>
Feed-back	<p>“A special meeting will be very helpful. The meeting with the UKMPPD team was very helpful because I was being able to find out the types of questions that were tested, errors, solutions, then were given a new theme and asked to make it again. It was very good and useful, but it was difficult to determine</p> <p>the right time” (2Kan respondent)</p>
Policy involvement	<p>“This is very influential, because our involvement in the preparation of the curriculum made us understand the material that must be mastered by general practitioners, so the questions to be made can be adjusted to the curriculum designed.” (2Kas respondent)</p>
Good award	<p>“The best lecturer award on teacher’s day should not only be given to 1 person. The best 20 lecturers should be chosen as a nomination in writing the MCQ questions, then the winner is chosen. It is an honor and pride to be able to enter the nomination, thus increasing the enthusiasm to make</p> <p>works in the form of questions.” (6Nan respondent)</p>

Discussion

Autonomy, relatedness and competence are basic needs that affect the encouragement of lecturers in writing MCQ questions. Autonomy, relatedness and competence can be divided into internal or intrinsic and external or extrinsic factors. Intrinsic factors are factors that originate from themselves, while extrinsic factors are external factors that affect a person’s performance. Intrinsic encouragement is obtained at all lecturers both clinical and preclinical who actively make questions in the faculty of medicine at private university with B accreditation. This intrinsic

encouragement is in the form of good lecturer competence in making questions, sincerity, obedience, high lecturer commitment in learning and professionalism. Whereas in the faculty of medicine at state university with A Accreditation, this intrinsic encouragement is also obtained by all clinical

and preclinical lecturers who are actively making questions. Intrinsic encouragement that is obtained at state lecturers includes good lecturer competence in making questions, high lecturer commitment in learning and professionalism. In this case there are differences between state and private faculty of medicine in terms of religiosity. The private and state lecturers who actively made problems did not get obstacles that came from intrinsic factors of previous research related to self-determination theory also explained the relation of autonomy relatedness and competence in learning^{11,12,13}

High commitment in writing questions is the main factor that encourages lecturers to carry out their duties in writing MCQ. High commitment in writing questions obtained in clinical and preclinical lecturers who are active in making questions. This commitment is obtained because of various factors, one of which is the opportunity for lecturers to participate in determining material which will be taught and tested to medical students. When the opportunity to jointly discuss the material to be selected makes both lecturers in state and private faculty of medicine feel motivated to make MCQ questions this is also in accordance with previous research that discusses communication and related issues. Opportunities given to someone will increase their commitment at work.^{14,15}

Extrinsic factors greatly influence the encouragement of both private and state lecturers. These extrinsic factors include their need to feel related to their environment and the need to be competent in their field. The lecturer development programs that is carried out effectively and regularly is a driving force for faculty of medicine lecturers in writing questions both for clinical and preclinical lecturers who are active or not actively making questions. The lecturer feels that they

make enough provision to make MCQ questions. There is a program for making routine questions is a motivation needed by lecturers in writing MCQ. The existence of this program makes lecturers have a regular schedule to contribute to writing MCQ questions. The training held by the institution has an impact on increasing the competence of lecturers and making lecturers achieve achievements in writing MCQ questions. In a study by Bland et al. and Pololi et al. that well-provided and regular mentoring is positively associated with the career satisfaction of lecturers in the Faculty of medicine.^{14,16}

The responsibility as a lecturer to write MCQ questions is the biggest encourage for both clinical and preclinical lecturers who are actively creating questions. Relatedness factors that encourage lecturers to continue writing about MCQ include good cooperation within the department, policy involvement, facilities availability, good communication. Good team work within the department make the work atmosphere conducive. The division of rights and obligations in one the department becomes clear so that the relationship is positive. Good communication in delivering feedback is an encouragement for both clinical and preclinical lecturers in writing MCQ questions. Good appreciation from the institution for both clinical and preclinical lecturers provides their own encouragement for making MCQ questions. Previous research on meeting the need for good cooperation among members in one department is a strong predictor for increasing lecturer productivity.^{14,17,18,19}

Setting clear question in writing schedules makes lecturers both clinical and preclinical lecturers can arrange their time to make MCQ questions in the midst of their busy life as a lecturers. The deadline makes the lecturer encouraged to write MCQ questions immediately. The obedience and sincerity of a lecturer in carrying out his role has a positive impact on his encourage in making questions. Lecturers in Islamic-based faculty of medicine in private university got results that their trust in charity is unbroken, the concept of making questions as worship, and responsibility towards God keeps them motivated to carry out

their duties well. This is in accordance with the hadith of Buhori's history. If Adam's child dies, his deeds are cut off except for three cases, almsgiving (wakaf), useful knowledge, and righteous children who pray to him.²⁰

Private and State university lecturers who do not actively write questions do not have intrinsic encouragement in carrying out their tasks. But the obstacles they face one of them is their own factors, among others: difficulty making MCQ questions, low commitment in learning and low competency in making questions. The basic psychological needs for autonomy provide the main basis for understanding the internalization of extrinsic rules. Humans have a strong desire to integrate rules to regulate their own behavior and determine the behavior that will be undertaken. An environment consisting of friends, parents, and teachers can influence the type and strength of one's encouragement or in other words can affect the internalization process.²¹

The same obstacle is experienced by all faculty of medicine lecturers, both faculty of medicine at private and state university. Lecturers who are active in writing questions or not, clinical and preclinical is low commitment to learning, difficulty in writing MCQ questions, and many other responsibilities by lecturers. This commitment underlies a person's behavior to carry out their duties properly or not. Commitment cannot be obtained just like that but influenced by external factors in the form of a lecturer's need to feel competent and the need to feel related to his environment. This is in accordance with the research in Jozefowicz et al about the quality of MCQ questions in the Faculty of medicine which states that one of the factors that influence the quality of MCQ questions is the lack of lecturer commitment in writing MCQ questions.^{2,22}

The difficulty of lecturers in writing MCQ questions was experienced by almost all lecturers both clinical and preclinical lecturers. The rules for writing MCQ questions that make it difficult for many lecturers to write MCQ questions. Lecturers need a lot of time and concentration in writing MCQ questions. The next difficulty is related to the answer options which must be five

and homogeneous. Both clinical and preclinical lecturers claim that it is difficult to make answer choices five and homogeneous.

This difficulty is related to not all of the answers to be tested are five and homogeneous. This is also in accordance with the research.^{2,23}

Junior lecturers in faculty of medicine at state university complained that the obstacle they experienced was being a backup lecturer. This backup lecturer makes junior lecturers to be ready to be a substitute when senior lecturers were unable to give lectures or write questions. This delegation is sometimes sudden before the exam is held so that junior lecturers are limited to prepare MCQ questions. The large number of responsibilities and heavy workload made faculty of medicine lecturers lack the time to write MCQ questions. This is complained especially by clinical lecturers both junior and senior. Previous research also found that faculty of medicine lecturers were faced with a solid practice schedule and research obligations, so that the teaching obligation is abandoned.^{5,24,25,}

Based on the results of the study, policy holders in both public and private institutions when going to improve the quality of lecturer resources must pay attention to various things including: intrinsic and extrinsic factors that challenge and encourage lecturers to engage in learning. Intrinsic factors in the form of

professionalism and high commitment to be involved learning does not appear by itself but requires needs from external factors, namely the need for relatedness and competence. The need for relatedness that is most needed by both private and state lecturers is good team work, involved in curriculum development, and interaction in recovery. Competence needs that need to be considered by the institution are conducting effective questioning training, providing feedback analysis items, writing questions according to their competencies, and becoming competent lecturers in their fields.

The factors which challenge the writing of questions also need to be known by the institution. These factors are influenced by internal and external factors of the lecturers. This internal

factor is low commitment. The low commitment of lecturers must be an evaluation material for policy holders regarding what influences it. As for the external factors are the difficulty of making questions. The difficulty of making questions is due to the rules that must be obeyed in making MCQ questions. This difficulty must be solved by holding an effective problem- making training. The next factor is related to the many responsibilities assigned to the lecturers of the Faculty of Medicine.

Conclusion

Acknowledgments

The conclusion of this study is the factors that challenge and encourage lecturers in writing MCQ questions consisting of basic physical needs in the form of autonomy, competence, relatedness, and religiosity. In addition, we can conclude that if an institution wants to conduct an appropriate development program for lecturers, it must pay

attention to the basic human needs of life which include autonomy, relatedness, competence and religiosity.

Authors's contribution:

Data gathering and idea owner of this study: Afridatul Luailiyah, Gandes Retno Rahayu, Mora Claramita

Study design: Afridatul Luailiyah, Gandes Retno Rahayu, Mora Claramita

Data gathering: Afridatul Luailiyah, Gandes Retno Rahayu, Mora Claramita

Writing and submitting manuscript: Afridatul Luailiyah

Editing and approval of final draft: Afridatul Luailiyah

Ethical clearance: This study was approved by the Gajah Mada University Ethical Committee

Source of Funding: This research is supported by Faculty of Medicine, UNISSULA.

References:

1. Case S. Strategies for performing well on multiple-choice question tests. In: Al Alwan I, Magzoub ME, Elzubeir M, eds. An international handbook of medical education: a guide for students. London:2012:247-53.
2. Jozefowicz RF, Koeppen BM, Case S, dkk. The quality of in-house medical school examinations. *Acad Med* ;2002;77(2):156-61.
3. Collins J. Education techniques for lifelong learning: writing multiple-choice questions for continuing medical education activities and self-assessment modules. *Radiographics* 2006; 26:543–551
4. Van Hoozer H. The teaching process: theory and practice in nursing. Norwalk, Conn: Appleton-Century-Crofts. 1987.
5. Lowenstein SR, Fernandez G, Crane LA. Medical school faculty discontent: prevalence and predictors of intent to leave academic careers. *BMC Med Educ*. 2007;7:37. doi:10.1186/1472-6920-7-37.
6. Creswell, J. W. *Research Design: Qualitative, quantitative, and Mixed methods Approaches* (2nd ed). Thousand Oaks; Sage Publications, Inc; 2003.
7. Creswell, J. *Research Design Qualitative, Quantitative, and Mixed Methods Approaches*. UK: Sage Publications, 2009.
9. Moleong, Lexy J. *Metodologi Penelitian Kualitatif*. Bandung: Remaja Rosdakarya. 2007
10. Satori, Djam'an & Komariah, Aan. *Metodologi Penelitian Kualitatif* (cetakan kedua). Bandung: Alfabeta. 2010
11. Sugiyono. *Metodologi Penelitian Pendidikan, Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta. 2008.
12. Gagne M, Deci E.L. Self-determination theory and Work Motivation. *Journal of Organizational Behavior*. 2005. 26. 331-362.
13. Jeffrey G. Bailey *Academics' Motivation and Self-efficacy for Teaching and Research*, Higher Education Research & Development, 1999;18:3:343-359, DOI:10.1080/0729436990180305
14. Ryan RM and Deci Edward L.: *Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions: Contemporary Educational Psychology*. 2000. 54–67.
15. Simpson DE, Rediske VA, Beecher A, Coger D, Meurer L, Lawrence S, Wolkomir M: *Understanding the careers of physician educators in family medicine*. *Acad Med* 2001, 76:259-265
16. Bland CJ, Seaquist E, Pacala JT, Center B, Finstad D: *One school's strategy to assess and improve the vitality of its faculty*. *Acad Med* 2002; 77:368-376.
17. DaRosa DA, Skeff K, Friedland JA, dkk. *Barriers to effective teaching*. *Acad Med*. 2011;86:453–9.
18. Pololi LH, Knight SM, Dennis K, Frankel RM: *Helping medical school faculty realize their dreams: An innovative, collaborative mentoring program*. *Acad Med* 2002, 77:377
19. Morzinsky JA, Fisher JC: *A nationwide study of the influence of faculty development programs on colleague relationships*. *Acad Med* 2002, 77:402-406
20. Hitchcock MA, Bland CJ, Hekelman FP, Blumenthal MG: *Professional networks: The influence of colleagues on the academic success of faculty*. *Acad Med* 1995, 70:1108- 1116.
21. Van den Berg BAM, Bakker AB, ten Cate ThJ. *Key factors in work engagement and job motivation of teaching faculty at a university medical centre*. 2013.3:264-27
22. ten Cate TJ, Kusurkar RA, Williams GC. *How Self-Determination Theory can assist our understanding of the teaching and learning processes in medical education*. *AMEE guide no. 59*. *Med Teach*. 2011;33:961–73.
23. Tarrant M & Ware J, *Impact of item-writing flaws in multiple-choice questions on student achievement in high-stakes nursing assessments*. *Medical Education* 2008; 42: 198– 206
24. Gerrity MS, Pathman DE, Linzer M, Steiner BD, Winterbottom LM, Sharp MC. *Career satisfaction and clinical-educators—the rewards and challenges of teaching*. *J Gen Intern Med*. 1997;12:S90–7.
25. Dybowski C ,Sehner S ,Harendza S, *Influence of motivation, self-efficacy and situational factors on the teaching quality of clinical educators*. *BMC Medical Education* (2017) 17:84. DOI 10.1186/s12909- 017-0923-2.
26. Van den Broeck A, Vansteenkiste M, Witte H, Lens W. *Explaining the relationships between job characteristics, burnout, and engagement: the role of basic psychological need satisfaction*. *Work Stress*. 2008;22:277–94.