Assessment of First-Year Students' Metacognitive Ability in Faculty of Medicine, UniSZA: Towards Curriculum Development

Shahid Hassan International Medical University (IMU), Malaysia

Introduction

The current state of affairs is looking for alternative approaches for effective learning. Metacognition promotes students' active engagement, self-assessment and self-sufficiency[1]. Metacognitive skills is considered important in delivery of curriculum that promotes development of critical capacity, reflective attitude and autonomous life-long learning[2]. Learner autonomy is well accepted pedagogical proposal[3] with long publication history since it was first introduced by Holec in 1979[4]. Two main categories of metacognition described are knowledge of cognition and regulation of cognition[5]

Keywords: Metacognition, learner autonomy, undergraduate students, curriculum integration.

Objective

To assess the relatioship of students metacognitive skills and achievement score in classroom settingin a student centered curriculum.

Methodology

A two items questionairre based survey in a cross-sectional observational study was performed. 60 subjects (17 males and 43 females) from preclinical phase of MBBS who underwent 33 lectures (27 from haematology and 6 from parasitology) were included. Students' response on three items survey was analysed for correlation between self-assessment and overall students' achievement scores in MBBS program. Pearson's correlation coefficient was used to analyse the data.

Results

A significant correlation (table 1) between LUL and MTF of 268 (*p* .039), LPL and MTF of .282 (*p*.029) as well as between SQL and MTF of .360 (*p*.005) was found. Compared to this poor correlation between LUL, LPL and SQL and the other three assessment tools (SEQ, PBQ and OSPE) was found. Weighting of items cognitive domain was also established (table 2) with more items in C1 and C2

Discussion

A significant correlation of students' perceptions as indicator of their metacognition in comprehending the lecture and their achievement score in classroom setting with MTF and poor correlation with SEQ, PBQ and OSPE is attributed to multiple factors. This include metacognitive skills, style of lecture and test of cognitive level of items. However, metacognitive skills as an accomplishment to perform a task in learning is identified imperative to students' personal attributes in delivery of curriculum[6].

Regulation of cognition promotes the concepts of learners autonomy published by Holec in 1981 and many authors proposed its integration in curriculum[7,8].

Table 1: Pearson's correlations between lecture understanding and scores

Number of Students = 60		LUL	LPL	SEQ	PBQ	MTF	OSPE
Understanding level (LUL)	Pearson (r)	1	.330*	-.012	-.061	.268*	-.017
			.010	.928	.642	.039	.899
Preparation level (LPL)	Pearson (r)	.330*	1	-.090	.083	.282*	.215
		.010		.493	.530	.029	.100
Question Level level (SQL)	Pearson (r)	.042	-.191	1	-.021	.360*	.113
		.747	.143		.875	.005	.391

*Correlation is significant at the 0.05-level (2-tailed).

Table 2: Bloom's taxonomy weighting of cognitive domain of measurement

Assessment Tool	Cognitive (Bloom's) and psychomotor (Simpson's) Educational Taxonomy Weighting (Coding) of Assessment Items			
	Recall (C1)	Understand (C2)	Apply (C3)	Analyse (C4)
MCQ (MTF)	46/50 (92%)	4/50 (8%)	0/50 (0%)	0/50 (0%)
SEQ	1/10 (10%)	9/10 (90%)	0/50 (0%)	0/50 (0%)
PBQ	1/8 (12.5%)	1/8 (12.5%)	6/8 (75%)	0/50 (0%)
	Perception (P1)	Set (P2)	Guided Res (P3)	Mechanism (P4)
OSPE	7/25 (28%)	3/25 (12%)	8/25 (32%)	7/25 (28%)

Conclusion

The insignificant correlation between perceptions of comprehending the lecture and achievement score is indicator of students' poor metacognitive skills in a self-claimed students' centred learning school curriculum.

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