

Metacognitive awareness and its relation to students' academic achievement: Time to ponder implication of curriculum delivery



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Introduction

In self-regulated learning theory, metacognition refers to “skills that enable learners to understand and monitor their cognitive process”. Two categories of metacognition were described as knowledge of cognition and regulation of cognition. Reflective aspects of metacognition promote self-efficiency of students' critical thinking, and problem solving skills. Curriculum delivery needs to be readjusted to incorporate metacognitive skills for critical judgments and independent problem solving by students. Metacognitive skill is important for learning is provided with evidence in this study and is recommended in teaching/learning.

Keywords: *Metacognition, curriculum delivery, knowledge acquisition*

Objective

To determine relation between metacognitive skills and students' achievement score in curriculum delivery and its impact.

Methodology

Metacognition awareness inventory (MAI) score was collected for students' metacognitive skills in declarative, procedural and conditional knowledge and planning, monitoring and evaluation process. Knowledge monitoring accuracy (KMA) as the difference between students estimated vs. actual knowledge on tests was also calculated. MAI score was analyzed using Pearson correlation coefficient with academic achievement in end of semester assessment (EOSA), Continuous assessment (CONASS) score and CGPA.

Results

Poor correlation between MAI CONASS, EOSA and a negative correlation between MAI and CGPA of pre-university assessment was identified. A comparatively greater correlation between MAI and OSPE than PBQ, SEQ and MTF was insignificant at $p>0.05$. Correlation between metacognitive skills as knowledge of cognitive factor (KCF) and regulation of cognitive factor (RCF) was significant at $p<0.05$. However, EOSA achievement score was comparatively more correlated with KCF than RCF. Correlation between MAI and KMA of individual instrument insignificant at $p<0.05$, showed better correlation for SEQ and OSPE.

Discussion

For a good learning practice metacognitive skills are necessary to understand the learning process to accomplish task in routine academics. Metacognition in teaching and learning supports the acquisition, comprehension, retention, and application of what is

Learned. Metacognition as self-assessment also affects the outcome learning as self-efficiency of students' critical thinking, and problem solving skills. In addition, metacognitive ability can lead students to become more aware of their own thinking and cognition in learning. Good metacognitive skills support students to take responsibility of their own learning to develop scientific concepts appropriately

Variables	CONASS N = 57	EOS N = 57	CGPA N = 57
MAI	.159 (.237)	.150 (.264)	-.014 (.919)
KCF	.225 (.092)	.191 (.156)	.003 (.983)
RCF	.118 (.384)	.120 (.374)	.026 (.848)

Variables	MTF (N = 57)	SEQ (N = 57)	PBQ (N = 57)	OSPE (N = 57)
MAI	.003 (.982)	.109 (.418)	.199 (.138)	.214 (.110)
EOSA	.872 (.000)	.884 (.000)	.806 (.000)	.830 (.000)
KCF	.032 (.812)	.203 (.131)	.187 (.164)	.214 (.110)
RCF	.003 (.979)	.050 (.711)	.186 (.165)	.195 (.146)

Variable	Grade Point Total (CONASS+EOSA)	MAI (N = 57)	KCF (N = 57)	RCF (N = 57)
GPT	1.00	.159 (.237)	.205 (.125)	.127 (.347)
MAI	.159 (.237)	1.00	.857 (.000)	.931 (.000)
KCF	.205 (.125)	.857 (.000)	1.00	.628 (.000)
RCF	.127 (.347)	.931 (.000)	.628 (.000)	1.00

Variable	KMA (MTF) N = 57	KMA (SEQ) N = 57	KMA (PBQ) N = 57	KMA (OSPE) N = 57
EOSA	-.243 (.069)	-.376 (.004)	.513** (.000)	-.190 (.057)
MAI	-.005 (.972)	.156 (.247)	-.147 (.275)	.149 (.269)

Conclusion

A poor correlation between students' perception of metacognitive skills and achievement score indicates students' unrealistic self-evaluation of their cognition for knowledge and regulation. This suggest curriculum delivery to incorporate students' awareness about metacognition in their learning process

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