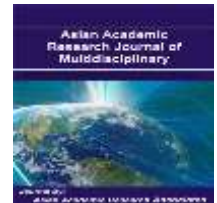




A Peer Reviewed International Journal of Asian
Academic Research Associates

AARJMD
ASIAN ACADEMIC RESEARCH
JOURNAL OF MULTIDISCIPLINARY



STUDENTS' MATHEMATICS PERFORMANCE AND SELF-EFFICACY BELIEFS IN A RICH ASSESSMENT TASKS ENVIRONMENT

EDUARD A. PAGTULON-AN¹; DENIS A. TAN²

¹Faculty, Central Mindanao University, Philippines

²Faculty, Central Mindanao University, Philippines

Abstract

This study investigated the students' mathematics performance and self-efficacy beliefs in a rich assessment tasks environment (RATE) in Central Mindanao University Laboratory High School. It made use of a quasi-experimental research design with Grade 8 students as respondents. Results showed that students from both groups have low performance in their pretest, but improved to high performance in both posttest and retention test after the intervention period. Students have positive self-efficacy beliefs before and after the intervention. Analysis of covariance (ANCOVA) indicated a comparable mathematics performance of those students who were exposed to RATE than those exposed to non-RATE. RATE potentially increase the performance and improve the self-efficacy beliefs of the low performing students as shown in the comparable results.

Keywords: Rich Assessment Tasks, Self-Efficacy Beliefs, Mathematics Performance

References

- Bandura, A. (1986). *Social Foundations of Thoughts and Actions: A Social Cognitive Theory*. Englewood Cliffs: NJ: Prentice-Hall.
- Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*: New York: Freeman.
- Clarke, D. & Clarke, B. (2006). Using Rich Assessment Tasks in Mathematics to Engage Students and Inform Teaching. Australian Catholic University. Australia.
- Cordova, C. C., & Tan, D. A. (2018). Mathematics Proficiency, Attitude and Performance of Grade 9 Students in Private High Schools in Bukidnon, Philippines. *Asian Academic Research Journal of Social Sciences and Humanities*. 5 (2), 103-116.
- Fan, L. & Zhu, Y. (2008). Using Assessment Performance in Secondary School Mathematics: An Empirical Study in a Singapore Classroom. *Journal of Mathematics Education*, 1 (1), 132-152.
- Farooq and Shah. (2008). Students' Attitude Towards Mathematics. University of Punjab, Pakistan.
- Getachew, K. & Birhane, A. (2016). Gender, Self-Efficacy Associated to Academic Achievements in Applied Mathematics: The Case of First Year Engineering Students of South Western Universities of Ethiopia. *International Journal of Current Research*, 8, (05), 30393-30400.
- Gray, H., Griffioen, M., Powers, C., & Sullivan, P. (2009). Exploring open- ended tasks as teacher learning. *Australian Primary Mathematics Classroom*, 14(2), 4-9.
- Guillaume, A. & Kirtman, L (2005). Learning lessons about lessons: Memories of mathematics instruction. *Teaching Children Mathematics*, 11(6), 302-309.
- Henhaffer, L. (2014). Selecting And Implementing Rich Mathematics Tasks In The Middle School. Ontario Institute for Studies in Education, University of Toronto.
- Jose, A. (2015). Students' Efficacy and Mathematics Performance in an Information and Communications Technology Guided-Discovery Learning Environment. Unpublished Master's Thesis. Central Mindanao University, Musuan, Bukidnon.
- Liu, X. & Koirala, H. (2009). The Effect of Mathematics Self-Efficacy on Mathematics Achievement of High School Students. *NERA Conference Proceedings 2009*. 30.
- Moon, T. R., Callahan, C. M., Brighton, C. M., & Tomlinson, C. A. (2002). *Development of differentiated performance assessment tasks for middle school classrooms* (RM02160). Storrs: University of Connecticut, The National Research Center on the Gifted and Talented.
- National Council Of Teachers Of Mathematics. (1989). *Curriculum and evaluation standards for school mathematics*. Reston, VA: Author.
- Prado, N. I., Tan, D. A., & Pabualan, M. S., (2016). Mathematics Teachers Self-Efficacy Beliefs Survey in all Levels of Education in Bukidnon, Philippines. *Central Mindanao University Journal of Science*. 20 (02), 44-58.

- Santos, R. 2007. *Assessment of Learning 1*. Lorimar Publishing House, Inc.
- Santos, R. 2007. *Advanced Methods in Educational Assessment and Evaluation*. Lorimar Publishing House, Inc.
- Schlosser, M. (2015). *Analysis of Alternative Assessments in Mathematics Classroom*. Bowling Green State University.
- Sullivan, P., Clarke, D., & Clarke, B. (2009). Converting mathematics tasks to learning opportunities: An important aspect of knowledge for mathematics teaching. *Mathematics Education Research Journal*, 21(1), 85-105.
- Tan, D.A., Orongan, R.C., & Guayan, D.A. (2015). Coherence of Pre-service Teachers' Conception of Mathematics and Its Teaching. *Central Mindanao University Journal of Science*. 19, 16-25.
- Tan, J.J., & Tan, D.A. (2013). Students' Beliefs and Mathematics Performance in a Process-Oriented Guided-Inquiry Learning (POGIL) Environment. *Central Mindanao University Journal of Science*. 17, 141-157.
- Tano, E. (2011). *A Causal Model of Global Self-Concept of Pre-Service Secondary School Mathematics Teachers in Northern Mindanao*. Unpublished Master's Thesis.
- Zimmerman, B. (2000). *Self-Efficacy: An Essential Motive to Learn*. University of New York.