

DEVELOPING AN INTERACTIVE LEARNING MODEL USING VISUAL BASIC APPLICATION WITH ETHNOMATHEMATICAL CONTENTS

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Abstract

This study aims to examine the development of an interactive learning model using Visual Basic Application (VBA) for Microsoft excel with ethnomatematical content on fractions, and the achievement of primary students' mathematical reasoning abilities. The research method used is development through the stages of conducting preliminary studies and literature, designing interactive learning models, conducting FGDs, producing initial designs of interactive learning models, conducting limited trials in one primary school at Cianjur, making revisions, conducting extensive trials in six primary schools in Indonesia, producing trial in a primary school at Cimahi, and the last obtaining a final model and conducting socialization. In the end, it provides a test of mathematical reasoning ability. The research subjects were students in eight primary schools in Indonesia. The results of the validation test for learning devices by mathematics education lecturers, the validation test for VBA for Microsoft Excel media by ICT-based learning media experts, and the validation of the material by experienced mathematics teachers generally obtained excellent criteria. The results of observations carried out in extensive trials received an average of 87% of the observed indicator achievement. These results are quite satisfying so that the designed model is useful in both development and application. The results of inferential statistical tests concluded that the achievement of students' mathematical reasoning abilities after being give learning with an interactive model using VBA for Microsoft Excel with ethnomathematical contents was better than using ordinary learning.

Keywords: Interactive Learning, Visual Basic Application, Ethnomathematics

References

- [1] Nugraha Y, Akbar P and Bernard M 2015 Pengaruh Kemandirian Belajar Siswa SMP terhadap Kemampuan Penalaran Matematis *J. Educ.* **01** 288–96
- [2] Bernard M 2015 Meningkatkan Kemampuan Komunikasi dan Penalaran serta

- Disposisi Matematik Siswa SMK dengan Pendekatan Kontekstual melalui Game Adobe Flash cs 4.0 *Infinity* **4** 197–222
- [3] Bernard M 2014 Meningkatkan Kemampuan Penalaran Matemattik Siswa Sma Melalui Game Adobe Flash Cs 4 *Prosiding Seminar Nasional Pendidikan Matematika STKIP Siliwangi* vol 2 pp 205–13
- [4] Mullis I V S, Martin M O, Foy P and Hooper M 2015 TIMSS 2015 International Results in Mathematics (IEA)
- [5] Ahmad G, Akbar M, Diniyah A N, Akbar P and Nurjaman A 2018 Analisis kemampuan kemampuan penalaran dan self confidence siswa sma dalam materi peluang *J. Educ.* **1** 14–21
- [6] Nurkhaeriyah T S, Rohaeti E E and Yuliani A 2018 Analisis kemampuan penalaran matematis siswa mts di kabupaten cianjur pada materi teorema pythagoras *J. Pembelajaran Mat. Inov.* **1** 827–36
- [7] Zulfikar M I A, Achmad N, Fitriani N, Institut M, Pendidikan I, Terusan J and Sudirman J 2018 Analisis Kemampuan Penalaran Matematik Siswa SMP Dikabupaten Bandung Barat Pada Materi Barisan dan Deret *J. Pendidik. Tambusai* **2** 1802–10
- [8] Sumarni C and Sumarmo U 2016 Penalaran Matematik Dan Kemandirian Belajar Siswa SMP Melalui Pembelajaran Generatif *Edusentris, J. Ilmu Pendidik. dan Pengajaran* **3**
- [9] Chotimah S, Bernard M and Wulandari S M 2018 Contextual approach using VBA learning media to improve students ' mathematical displacement and disposition ability Contextual approach using VBA learning media to improve students ' mathematical displacement and disposition ability *Journal of Physics: Conf. Series* vol 946
- [10] Rohaeti E E, Bernard M and Primandhika R B 2019 Developing Interactive Learning Media For School Level Mathematics Through Open-Ended Approach Aided By Visual Basic Application For Excel *J. Math. Educ.* **10** 59–68
- [11] Fitriani N, Suryadi D and Darhim D 2018 The Students' Mathematical Abstraction Ability Through Realistic Mathematics Education With Vba-Microsoft Excel *Infinity* **7** 123–32
- [12] d'Ambrósio U 2006 *Ethnomathematics: Link between traditions and modernity* (BRILL)
- [13] Barton B 1996 Making sense of ethnomathematics: ethnomathematics is making sense *Educ. Stud. Math.* **31** 201–33
- [14] Mulyasa E 2013 *Pengembangan dan implementasi kurikulum 2013* (PT Remaja Rosdakarya)
- [15] Kadarisma G, Nurjaman A, Sari I P and Amelia R 2019 Gender and mathematical reasoning ability *Journal of Physics: Conference Series PAPER*
- [16] Costu S, Arslan S, Çatlio H and Birgin O 2009 Perspectives of elementary school teachers and their students about relating and contextualizing in mathematics *Procedia Social and Behavioral Sciences* vol 1 (Elsevier) pp 1692–6
- [17] Gainsburg J 2008 Real-world connections in secondary mathematics teaching *J. Math. Teach. Educ.* 2–5 Anderson, TW (2003). *An Introduction to Multivariate Statistical Analysis*, 3rd ed, Wiley, NY.