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Analysis of the indicator's performance to predict Indonesian Teacher Engagement Index (ITEI) using artificial neural networks

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Abstract

Research related to the Indonesian Teacher Engagement Index (ITEI) is still being developed to get better predictive accuracy. In this study we conducted an analysis using the Neural Network approach to determine the performance of each dimension obtained from the ITEI database. Root Mean Square Errors values generated when using variables in dimensions related to Nationality Character are quite low, which is 0.151, with a correlation of 0.906 and execution time of 13s. In addition, the Nationality Character Dimension obtained excellent performance predictions when combined with the Positive Education Dimension. The Square Errors Root Mean value can be reduced to 0.102 with 8s execution time. The results of this analysis will be used as the basis for developing ITEI applications in the future so that the resulting Teacher Profiling can be used as a basis for policies and strategies to improve teacher performance and engagement in the school environment.

Author keywords

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1 Cardwell, M.E.
(2011) *Patterns of Relationships between Teacher Engagement and Student Engagement*, pp. 1-125. Cited 29 times.
Educ Dr Internet
http://libguides.sjfc.edu/citations

2 Sasmoko, Doringin, F., Indrianti, Y., Goni, A.M., Ruliana, P.
Indonesian Teacher Engagement Index (ITEI): An Emerging Concept of Teacher Engagement in Indonesia

(2018) *IOP Conference Series: Materials Science and Engineering*, 306 (1), art. no. 012119. Cited 5 times.
http://www.iop.org/EJ/journal/mse
doi: 10.1088/1757-899X/306/1/012119

View at Publisher

3 Sasmoko, N., Indrianti, Y., Permai, S.D., Manalu, S.R.
Applying Indonesian teacher engagement index (itei) apps: Self-diagnostic
(2018) *ICIC Int*, 9 (3).

4 Rajabi, S.
A recommender system for the web: Using user profiles and machine learning methods
(2014) *Int J Comput Appl*, 96 (11), pp. 975-8887. Cited 4 times.

5 Zacharis, Z.
Predicting student academic performance in blended learning using artificial neural networks
(2016) *Int J Artif Intell Appl*, 7 (5), pp. 17-29. Cited 52 times.
N. Internet
http://www.aircconline.com/ijaia/V7N5/7516ijaia02.pdf

6 Turhan, M., Erol, Y.C., Ekici, S.
Predicting students' school engagement using
(2016) *Int J Adv Sci Eng Technol*, 4 (3), pp. 159-162. Cited 4 times.

7 Ye, M., Osman, O.A., Ishak, S., Hashemi, B.
Detection of driver engagement in secondary tasks from observed naturalistic driving behavior

(2017) *Accident Analysis and Prevention*, 106, pp. 385-391. Cited 35 times.
http://www.sciencedirect.com/science/journal/00014575
doi: 10.1016/j.aap.2017.07.010

View at Publisher

8 Shahiri, A.M., Husain, W., Rashid, N.A.
A Review on Predicting Student's Performance Using Data Mining Techniques

(2015) *Procedia Computer Science*, 72, pp. 414-422. Cited 513 times.
http://www.sciencedirect.com/science/journal/18770509
doi: 10.1016/j.procs.2015.12.157

View at Publisher

9 Sasmoko, Muqsith, A.M., Widhyatmoko, D., Indrianti, Y., Khan, A.
Indonesian teacher engagement index (ITEI): Decision support system for education (Open Access)

(2017) *2017 5th International Conference on Cyber and IT Service Management, CITSM 2017*, art. no. 8089321. Cited 6 times.
ISBN: 978-153862737-2
doi: 10.1109/CITSM.2017.8089321

View at Publisher

10 Li, H., Zhang, Z., Liu, Z.
Application of artificial neural networks for catalysis: A review

(2017) *Catalysts*, 7 (10), art. no. 306. Cited 170 times.
http://www.mdpi.com/2073-4344/7/10/306/pdf
doi: 10.3390/catal7100306

View at Publisher

11 Şahin, H., Topal, B.
Impact of information technology on business performance: Integrated structural equation modelling and artificial neural network approach

(2018) *Scientia Iranica*, 25 (3B), pp. 1272-1280. Cited 20 times.
http://scientiairanica.sharif.edu/article_20526_4b6e7c5435e723c2d391650fd620a75f.pdf
doi: 10.24200/sci.2018.20526

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12 Wang, W.-C., Silva, M.M.S., Moutinho, L.
Modelling consumer responses to advertising slogans through artificial neural networks
(2016) *Unknown*, 15 (2), pp. 89-116. Cited 4 times.
Internet
http://search.ebscohost.com/login.aspx?direct=true&db=eoh&AN=EP120086962&site=ehost-live

13 Paliwal, M., Kumar, U.A.
Assessing the contribution of variables in feed forward neural network

(2011) *Applied Soft Computing Journal*, 11 (4), pp. 3690-3696. Cited 48 times.
doi: 10.1016/j.asoc.2011.01.040

View at Publisher

14 Weissteiner, D.J.
(2018) *Variable Importance Measures in Regression and Classification Methods*

15 de Oña, J., Garrido, C.
Extracting the contribution of independent variables in neural network models: A new approach to handle instability
(Open Access)

(2014) *Neural Computing and Applications*, 25 (3-4), pp. 859-869. Cited 84 times.
http://link.springer.com/journal/521
doi: 10.1007/s00521-014-1573-5

View at Publisher

16 Naser, S.A., Zaqout, I., Ghosh, M.A., Atallah, R., Alajrami, E.
Predicting student performance using artificial neural network: In the faculty of engineering and information technology
(2015) *Int J Hybrid Inf Technol*, 8 (2), pp. 221-228. Cited 80 times.

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