REVISION FORM JURNAL INFOTEL

Author(s): Desi Susanti, Joko Triloka

Title: PREDICTION OF STUDENT ACHIEVEMENT AT SMK TELKOM LAMPUNG USING ARTIFICIAL NEURAL NETWORK

The referees' comments concerning our manuscript were extremely helpful to us in preparing a clearer version. We have revised our manuscript according to the referees' and editor's suggestions. We have marked in blue the parts that have been changed in the revised manuscript or explained. The main revised parts are briefly described as follows:

REVIEWER COMMENTS

Reviewer 1: Comments to the Author

1. **This paper compare one of ANN method (but not described) with SVM. So, it will be better if in title, SVM and the method in ANN used can be written?**

Author Reply:

We sincerely appreciate the opportunity given by the reviewer to revise this journal. For clarity, we have updated the title to include the ANN method used alongside SVR. Additionally, we have modified "SVM" to "SVR" to better align with regression analysis.

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2. **What method of ANN used in this paper? there are a lot of ANN's method can be used, but not mentioned in this paper**

Author Reply:

We apologise for the oversight. The specific ANN method used in this paper is a Feedforward Neural Network (FNN). We have updated the manuscript to include this information.

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3. **Abstract should contain problems, research objectives, methods, and research results. Please make it in order**

Author Reply:

Thank you for the feedback. We have revised the abstract to clearly outline the problems, research objectives, methods, and research results in the appropriate order.

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4. **Research result in abstract (last paragraph) should be proven by test values achieved in this research.**

Author Reply:

We have restructured the abstract to include the specific test values and results achieved in this research to substantiate our findings.

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5. **In introduction, it still lack of description, why author use SVM. Only because it is famous algorithm and fast? so why, author should compare SVM with ANN? Please make descriptive explanation about the reason and make more references about SVM/ANN used in this research to give reason.**

Author Reply:

We appreciate this comment. We have provided a more detailed explanation in the introduction regarding the choice of SVR and its comparison with ANN, supported by additional references.

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6. **Author can give equation in method, such as for SVM, and the others.**

Author Reply:

For clarity, we have included the relevant equations for SVR and the ANN method used in the methodology section.

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7. **Please make table in TABLE format, not in figure.**

Author Reply:

We have ensured that all tables are formatted correctly according to the TABLE format in the revised manuscript.

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8. **Please give explanation for each table and figure presented in this paper. Author should not only present table/figure without explanation..**

Author Reply:

We have provided detailed explanations for each table and figure presented in the paper to enhance the understanding of the data and results.

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9. **Discussion is too less. Discussions should contain author's opinions and in-depth explanations regarding the results of the research including comparing the results of the research carried out with other similar studies. Please cite more references in discussions section.**

Author Reply:

We have expanded the discussion section to include more in-depth explanations and comparisons with similar studies, supported by additional references.

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10. **Conclusion should concludes the things presented and discussed in the Results and Discussion section.**

Author Reply:

We have revised the conclusion to sufficiently summarise the key points presented and discussed in the Results and Discussion sections.

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11. **Some references did not complete, without name of journal, vol, no, page or DOI. Please complete it.**

Author Reply:

We have enhanced and completed all references

Reviewer 2: Comments to the Author

1. **Reviewer This paper proposes using an artificial neural network to predict student achievement at SMK TELKOM LAMPUNG. They used ANNs, inspired by the human brain, to analyze student data and identify patterns that correlate with delays.**

   Overall, it demonstrates the evaluation of the validation data effectiveness model for predicting student delays. The results are good, but they have to be visualized across different problem categories using more complex intelligence techniques.

   Other methods can be used to evaluate and compare performance metrics with recent research.

   Generally, this is a promising application of AI in education. There's scope for improvement by incorporating more data, refining the model, and considering additional student performance factors.

Author Reply:

Dear Reviewer,

Thank you for your insightful and constructive feedback on our paper. We appreciate your recognition of the potential of using artificial neural networks (ANNs) to predict student achievement at SMK TELKOM LAMPUNG. Your comments are valuable for enhancing the quality and impact of our research.

We acknowledge your suggestion to visualise the results across different problem categories using more complex intelligence techniques. We agree that this would provide a more comprehensive understanding of our model's performance and its applicability to various scenarios. In our future work, we plan to incorporate advanced visualisation techniques and explore more sophisticated models to capture the nuances of student performance data better.

Additionally, we appreciate your recommendation to compare our performance metrics with recent research. We will include a more detailed comparative analysis in our subsequent revisions to highlight the strengths and weaknesses of our model relative to other approaches. This will help in benchmarking our work and identifying areas for improvement.

We also recognized the importance of incorporating more data and refining our model by considering additional factors influencing student performance. Expanding the data set and including a broader range of variables will undoubtedly enhance the accuracy and robustness of our predictions.

Thank you once again for your valuable feedback. We are committed to improving our research and look forward to implementing these suggestions to make our study more comprehensive and impactful.

Reviewer 3: Comments to the Author

1. **The problem is not well introduced. What is the problem regarding achievement in vocational schools?**

Author Reply:

Thank you for your feedback. We sincerely hope to be granted the opportunity for revision and not be declined. We have revised the introduction to clearly outline the specific problem related to student achievement in vocational schools, such as the challenges in predicting academic performance.

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2. **Some details about the data are missing, such as the source of the data and what variable to predict. In one part, it is written that the aim is to predict student delay, but in another part, the estimated variable is achievement.**

Author Reply:

We apologize for the confusion. Now we have provided a detailed description of the data source and clarified that the main variable being predicted is student achievement.

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3. **Some stages, such as data cleansing, data transformation, data partitioning, data validation, and EDA, are missing explanations. It is not clear how exactly authors perform those operations since the details of those steps are not written**

Author Reply:

Thank you for pointing this out. We have included detailed explanations of each stage, including data cleansing, data transformation, data partitioning, data validation, and exploratory data analysis (EDA), to provide a clear understanding of our methodology.

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4. **It is questionable why authors use SVM since the problem is regression (indicated by MSE, RMSE, and R2 as evaluation methods). SVM is an algorithm for classification, not regression. Authors should use SVR instead. result in abstract (last paragraph) should be proven by test values achieved in this research.**

Author Reply:

We appreciate your observation. We acknowledge the mistake and now corrected it by using Support Vector Regression (SVR) instead of SVM, as SVR is suitable for regression problems.

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5. **The architecture and hyperparameters of the ANN are not explained in the manuscript**

Author Reply:

Thank you for your feedback. We have included a detailed description of the ANN architecture and the hyperparameters used in our experiments to ensure reproducibility and clarity.

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6. **From a contribution aspect, the paper lacks originality since it only uses ANN and SVM, which are already implemented in Orange.**

Author Reply:

We understand your concern. We enhanced the contribution of our paper by exploring and discussing additional techniques and their comparative performance.

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7. **Equations should be written using equation editor on Word and numbered.**

Author Reply:

Thank you for the suggestion. We have ensured that all equations are formatted using the equation editor in Word and properly numbered in the revised manuscript.