

# Learning Character-based Analysis of Child Students Via Deep Learning Method

Dinh Tran Ngoc Huy

**Abstract---** *Character education is a program that encourages educational institutions worldwide to educate ethical, responsible and caring young individual by emphasizing universal eternal qualities. It is a proactive endeavour by schools, communities, and states to teach pupils moral ideals. This study highlighted how child-friendly schools could use literacy programs to build students' character. Because it was a case study, the author could not generalize the findings to all child-friendly schools. Character education was implemented by instilling moral values, facilitation, academic, social, and religious activities, and through class-based, school-wide, and community-based programs. The convolutional neural network (CNN) examines and learn character-based education for kids.*

**Keywords---** *Character Analysis, Education, Child Students, Self-development, Curriculum, A Community-based Learning Process.*

## I. INTRODUCTION

GOOD parents do more than love and provide for their children; they intend to form their children's character (Mooney-Doyle, K., et al., 2018). Character education is a program that encourages educational institutions worldwide to educate ethical, responsible and caring young individual by emphasizing universal eternal qualities (Am, A.I., & Nugrahani, F. (2019)). It is a proactive endeavour by schools, communities, and states to educate students on ethical ideals (Purnama, D., Hasruddin, H., & Aryeni, A. (2019)). School is a fantastic venue to develop students' character. The school circumstance is managed to allow students and school inhabitants to build everyday activities that represent values or characters (Yusupova, N., Skudareva, G., & Milkevich, O. (2019)). This phase will help create a school atmosphere that is clean, disciplined, critical, courteous, and tolerant. Activities, curricular and extracurricular activities; decision-making procedures; regulations; and social interactions among school components are all part of school culture (Daniati, S.P., Subiyantoro, S., & Fadhilah, S.S. (2019)).

When it comes to character education in a global setting, the idea that schools are teaching students to be clever and teaching them to have the personality, moral values. Character education must take place not just in schools but also in the homes and communities in which students live and interact with their peers. Parents play a critical role in imparting character education to their children, and they are the first and most

crucial venue to do it. The five most essential character values such as worship, honest, polite, harmonic, and learning are vital to be taught. Parents must utilize proper means to implant the character's ideals in their children, such as discourse, examples, counsel, and questions without standards. The preceding strategies help the youngster integrate their character ideals.

Character education is vital due to different crises confronting the nation and state currently (Dewantara, J.A., Efriani, E., Sulistyarini, S., & Prasetyo, W.H. (2020)). More and more rising and prevalent values of hedonism, public sex, drug misuse, and violence do not require faith and piety. The primary purpose of this research is to examine the characteristics of kid students to extend their education.

## II. RELATED WORKS

Zurqoni et al. (2018) described the significance of character education for students to support their future success. Recently, countries, including Indonesia, have intensified the application of character education in their educational systems. About the preceding claims, the aim of the study was to illustrate the effect of character education implementation and the problems and techniques used by instructors in character education implementation. Geiger et al. (2018) provided the results of an online poll on perceptions of barriers to FCA and college-based assistance programmes. The findings show several obstacles connected to financial support, student participation, student housing, and assisting students in dealing with family and personal problems. Beckmann et al. (2018) undertook an in-depth evaluation of these pupils' non-cognitive features to identify and intervene. A thorough examination of 23 publications was carried out. Oswald et al. (2018) developed a measure of parental participation using elements from the 2012 National Household Education Surveys (NHES) Program.

Muller et al. (2018). investigate the association between various levels of parental participation and two measures of academic performance, student grades and achievement test scores. Grades are issued by the student's teacher, who may base the stage on behaviour or other subjective evaluations, whereas test scores indicate whether questions were successfully answered. Jeynes et al. (2019). defined that character education is related to greater levels of educational outcomes, regardless of the standardized or nonstandardized measure used. Firmansyah et al. (2018). analyzed the findings of observations of primary school children aged 6 to 12 years, with the research target chosen at random. Lian et al. (2020)

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sought to ascertain how the school gives pupils creative space through the child-friendly school curriculum. This descriptive qualitative study looked into how to allow students creative freedom in a child-friendly school programme.

### III. ANALYSIS OF CHILD STUDENTS BASED ON THEIR CHARACTER

This research was conducted using mixed approaches (qualitative and quantitative). This strategy was utilized in a study project to collect objective, comprehensive, and valid data. The strategy included qualitative and quantitative data gathering and processing, then compared. The research paradigm used a balanced mix of qualitative and quantitative methodologies, with qualitative methods dominating quantitative methods. The research population comprised 246 teachers and students. The study sample consisted of 35 teachers and 50 pupils chosen by purposive sampling. The model picked was thought to know the most about the research topic, making it simpler for investigation purposes.

The simulation instruments employed were a questionnaire, observation, interview, and document guides. The statement was utilized to obtain data by directly observing research objects. A questionnaire was utilized to collect data about character-based learning, self-development activities, and character education at Bone Regency Islamic Junior High School. Aside from that, researchers interviewed school leaders to learn more about character education at Islamic Junior High School. The learning strategy was analyzed, including the learning objectives, indicators, media, and character-based learning assessment.

The information was examined both qualitatively and quantitatively. While quantitative data was edited and scored, qualitative data was not. Partial determination coefficient, Inductive qualitative data analysis, hypothesis testing, inferential analysis, and quantitative descriptive data analysis were employed in data analytics.

#### 1. Data Analysis Using 1D CNN

In the suggested technique, a CNN teaches children about character. Four layers are used in this study to offer a low computation overhead accurate medication effect prediction system. They are the convolution layer, the autoencoder layer, the deconvolution layer, and the softmax layer. CNN is often divided into two segments. Section 1 shows how convolution and pooling procedures can produce in-depth features from raw data. Section 2 connects the elements to an MLP for categorization. Here are some specifics about each layer:

1. **Input Layer:** It has  $N \times k$  neurons, in which  $k$  stands for the variate number of input time series and  $N$  represents the length of every univariate series.
2. **Convolutional layer:** Convolution filters perform convolution operations on the preceding layer's time series. Here are specific filter parameters that should be defined beforehand based on domain knowledge or experiments, such as filter numbers  $m$ , convolution stride  $s$ , and filter size  $k \times l$ , in which  $k$  signifies the variate number of the time series in the preceding layer and  $l$  specifies the length of the filter. For example,

suppose the primary layer includes  $k$ -variate time series and the length of each univariate is  $N$ , after the Convolutional process. In this layer, a nonlinear transformation function  $f$  must also be found.

3. **Auto Encoder Layer:** Autoencoders retain a representation (encoding) for a data set by training the network to ignore signal "noise" to reduce dimensionality. A feedforward non-recurrent neural network (MLP) with an input layer, an output layer, and one or more hidden layers connecting them, here the output layer has the similar amount of nodes (neurons) as the input layer to rebuild its inputs (lowering the difference between the input and output). An autoencoder contains transitions  $\Phi$  and  $\Psi$  such that:

$$\Phi : X \rightarrow F$$

$$\Psi : F \rightarrow X$$

$$\Phi, \Psi = \arg \min_{\Phi, \Psi} \|X - (\Psi \circ \Phi)X\|^2$$

The encoder stage of an autoencoder takes the input  $x \in R^d = X$  and maps it to  $h \in R^p = F$ :

$$h = \sigma(Wx + b)$$

1. **Softmax layer:** A Softmax function squashes data. Squashing functions limit the function's output to the 0-1 range. This converts the output to a probability. Softmax functions are also multi-class sigmoids used to determine the likelihood of many classes. A softmax function's results can be understood as probabilities (i.e. they must sum to 1); hence it's usually the last layer in neural network functions. Notably, a softmax layer must contain the same number of nodes as the final output. A neural network may try to detect a dog in an image. It may be able to give a probability that a dog is present or absent in an image, but only for each input. A softmax layer enables a multi-class function. In brief, the neural network can now determine the probability that the dog is in the image and other items. There are limits to how well Softmax layers choose multi-class possibilities. Softmax can get expensive as courses grow. Candidate sampling can help in those instances. A softmax layer can only calculate for a subset of classes with candidate sampling. It is not necessary to calculate the probability of all the fruits in a bowl to determine if there are apples. A softmax layer also assumes only one member per class; therefore, it won't function if an item belongs to many classes. Conversely, utilise multiple logistic regressions.
2. **Output layer.** It has  $n$  neurons with  $n$  classes of time series and is entirely linked to the feature layer. The maximum output neuron is considered as the class label of the input emotion in a categorization process.

### IV. RESULTS AND DISCUSSION

In this portion, the suggested research technique is numerically evaluated in terms of accuracy and precision in examining the effectiveness of the recommended and previous

research procedures. The presented research method is implemented using the Matlab simulation environment.

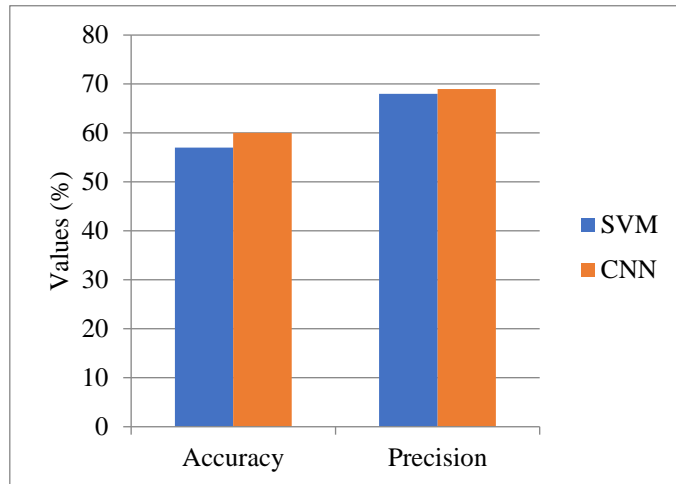


Fig. 1: Accuracy and precision comparison

Figure 1 depicts a comparative analysis of the suggested technique with the conventional methods, CNN. These findings show that the new scheme outperforms the current approach. The suggested CNN has a 9% higher accuracy than SVM.

## V. CONCLUSION

Character-based learning was implemented by installing values, moral values, facilitation, and academic, social, and religious development activities. Scheduled, spontaneous, routine activities and conditioning were used to implement self-development activities. Character education was enhanced by integrating class-based actions, school culture, and community-based actions. The analysis performed in the Matlab simulation environment confirmed that the new technique outperformed the existing techniques in terms of prediction rate.

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