INTISARI

Metode deteksi gaya belajar otomatis dapat dibagi menjadi dua yakni Metode *Data-Driven (DD)* dan *Literature Based (LB).* Kedua metode deteksi gaya belajar otomatis tersebut memiliki kelebihan dibandingkan metode deteksi gaya belajar konvensional, karena metode deteksi gaya belajar otomatis menggunakan sumber data eksternal seperti forum, kuis dan kunjungan bahan ajar yang lebih akurat dibandingkan dengan kuesioner yang digunakan dalam metode deteksi gaya belajar konvensional.Meskipun demikian, hasil deteksi otomatis tidak selalu mencerminkan gaya belajar yang dimiliki pembelajar karena forum, kunjungan bahan ajar, dan frekuensi akses bahan ajar dapat dipengaruhi banyak hal. Faktor yang mempengaruhi antara lain terdiri dari: faktor kecepatan akses, ketersediaan bahan ajar, keterbatasan fitur pembelajaran dan rasa ingin mengetahui semua jenis bahan ajar. Faktor-faktor ini dapat mengurangi akurasi, sehingga pembelajaran tidak berlangsung optimal.

Untuk mengatasi kendala tersebut, penelitian ini mengusulkan metode deteksi gaya belajar yang mengambil data dari sumber internal pembelajar yakni *prior knowledge*. Adapun tahapan yang dilakukan yaitu: tahapan pembangunan pertanyaan *prior knowledge*, tahapan pengukuran *prior knowledge*, dan tahapan deteksi gaya belajar dengan menggunakan metode *data mining* yaitu Jaringan Syaraf Tiruan, Naïve Bayes, *decision tree*, SVM dan K-NN. Pengujian data menggunakan tiga dataset yaitu *prior knowledge*, *behavior* dan *hybrid*.

Hasil penelitian menunjukkan bahwa metode jaringan syaraf tiruan dan *Naïve Bayes* memiliki akurasi paling tinggi diantara metode lainnya yaitu 91,48% dengan nilai *Cohen's Kappa* 0,876 menunjukkan *reliability* tinggi. Untuk metode deteksi lainnya yaitu metode K-NN akurasinya 89,39%, *decision tree* akurasinya 89,20% dan SVM akurasinya 87,31%. Namun berdasarkan hasil *precision* dan *recall Naïve Bayes* memiliki *precision* paling tinggi yaitu 91,74%, sedangkan recall yang paling tinggi tidak dimiliki *decision tree* dengan metode *information gain* dengan nilai 92,22%. Selain itu berdasarkan hasil eksperimen penggunaan data *prior knowledge* menunjukkan hasil akurasi paling tinggi dibandingkan data *behavior* dan data *hybrid*.

Kata kunci – Deteksi gaya belajar otomatis, *prior knowledge*, *behavior*, *hybrid*.

ABSTRACT

The automatic learning style detection method can be divided into two namely *Data-Driven (DD)* and Literature Based (LB) methods. Both of these automatic learning style detection methods have advantages over conventional learning style detection methods, because the automatic learning style detection methods use external data sources such as forums, quizzes and teaching material visits that are more accurate than the questionnaire used in conventional learning style detection methods. However, the results of automatic detection do not always reflect the learning styles owned by learners because forums, teaching material visits, and the frequency of access to teaching materials can be influenced by many things, including factors of speed of access, availability of teaching materials, limitations of learning features and a curiosity to know all types teaching materials. These factors can reduce accuracy, so learning does not take place optimally.

To overcome these obstacles, this study proposes a method of detecting learning styles that takes data from the learner's internal sources, namely prior knowledge. The stages are carried out: the stages of prior knowledge question development, the prior knowledge measurement stage, and the learning style detection stage using data mining methods, namely neural networks, naïve bayes, decision trees, SVM and K-NN. Testing data uses three datasets namely prior knowledge, reliability and hybrid.

The results showed that the artificial neural network method and Naive Bayes language had the highest accuracy among the other methods, namely 91.48% with a Cohen's Kappa value of 0.876 indicating high reliability. For other detection methods, the K-NN method has 89.39% accuracy, the decision tree has 89.20% accuracy and the SVM has 87.31% accuracy. However, based on the results of precision and recall Naïve Bayes have the highest precision that is 91.74%, while the highest recall is not owned by a decision tree with the information gain method with a value of 92.22%. Besides that, based on the experimental results the use of prior knowledge data shows the highest accuracy results compared to behavior data and hybrid data.

Key Word – detection learning style, *prior knowledge*, behavior, hybrid