Evaluation of the Effect of Bayesian Student Modeling on Academic Achievement in Foreign Language Teaching Paper

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Evaluation

The paper is well-structured, meaning that it has a proper title reflecting the study conducted, followed by the abstract that outlines the problem definition, the methodology followed, the experimental design, and the results. Abstract is followed by the keywords related to the paper, and a list of authors, who are ordered according to their contribution levels. Abstract is followed by an introduction that clearly states the aim of the study, which is diagnosing the individual student's learning style with the help of an expert system based on a Bayesian network using two groups, one with learning styles taken into account and the second, without.

The introduction is followed by the methods section, which clearly states that client-server-based, browser-shell software was developed to test the proposed student modeling system. It explains the learning styles used for modeling, providing proper references to existing learning styles in the literature. Then gives the details on how the control and experimental groups are constructed, and the adaptation of the questionnaire to Turkish in order to provide precise validation and verification for academic achievement results. Empirical findings are displayed with tables using proper numbers and captions. Figures are used to explain statistical and categorical concepts with correct numbering. Figure 2 is blurry, so it may have been better to use a better resolution one. The methods section thoroughly states which technique to use for classifying learning styles, partitioning of students into two groups, and applying the proposed methodology on one group while applying the traditional approach on the other group to test fairly for academic achievement.

The Methods section is followed by the Results section, which briefly discusses two main findings of the study, namely, the diagnosis of learning style performance and the effect of the proposed approach on academic achievement. The results section is followed by a discussion that emphasizes the contribution of the study by using a Bayesian-based student modeling targeting English language learning. This section also provided statistical outcomes as percentages and gave the uniqueness of the study by mentioning that there has not been an experimental study that could diagnose at least one student correctly across all learning styles, attributing it to the performance analysis criterion already developed.

The results section is followed by the references section; citations in each session of the paper are correctly referenced in this section to provide a ground for claims that have been made. As the paper also stated as a possible improvement, participants are taken from diverse departments, so it may have been better to conduct a background check for participants to ensure that they are at a relatively similar level of English language. This may have prevented possible biases that may have arisen in the evaluation. In order to strengthen the hypothesis of the study, broader participation and inclusion of different learning styles may be needed to discuss how successful the proposed modeling system is. This may lead to reconsideration of the rejected hypothesis "Learning styles based tutoring results in an increase in academic achievement with respect to traditional web-based tutoring".