

Social Media Data Analysis for Personality Modelling and Learning Styles Prediction Using Educational Data Mining

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Abstract : In designing learning environments, the instructional strategies can be tailored to suit the learning style of an individual to ensure effective learning. In this study, the information shared on social media like Facebook is being used to predict learning style of a learner. Previous research studies have shown that Facebook data can be used to predict user personality. Users with a particular personality exhibit an inherent pattern in their digital footprint on Facebook. The proposed work aims to correlate the user's' personality, predicted from Facebook data to the learning styles, predicted through questionnaires. For Millennial learners, Facebook has become a primary means for information sharing and interaction with peers. Thus, it can serve as a rich bed for research and direct the design of learning environments. The authors have conducted this study in an undergraduate freshman engineering course. Data from 320 freshmen Facebook users was collected. The same users also participated in the learning style and personality prediction survey. The Kolb's Learning style questionnaires and Big 5 personality Inventory were adopted for the survey. The users have agreed to participate in this research and have signed individual consent forms. A specific page was created on Facebook to collect user data like personal details, status updates, comments, demographic characteristics and egocentric network parameters. This data was captured by an application created using Python program. The data captured from Facebook was subjected to text analysis process using the Linguistic Inquiry and Word Count dictionary. An analysis of the data collected from the questionnaires performed reveals individual student personality and learning style. The results obtained from analysis of Facebook, learning style and personality data were then fed into an automatic classifier that was trained by using the data mining techniques like Rule-based classifiers and Decision trees. This helps to predict the user personality and learning styles by analysing the common patterns. Rule-based classifiers applied for text analysis helps to categorize Facebook data into positive, negative and neutral. There were totally two models trained, one to predict the personality from Facebook data; another one to predict the learning styles from the personalities. The results show that the classifier model has high accuracy which makes the proposed method to be a reliable one for predicting the user personality and learning styles.

Keywords : educational data mining, Facebook, learning styles, personality traits

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