A Survey on Significance for Changes Student's thoughts using Data Mining

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ABSTRACT

This paper aims to calculate the factors and build prediction models for the persuasive message changing student's attitude by applying classification techniques. We used a questionnaire to collect data such as gender, age and their satisfaction with persuasive messages, obtained from students at other country Universities. The classification rule generation process is based on the decision tree as a classification method where the generated rules are studied and evaluated. We compared the results obtained from three algorithms.

Keywords: data mining, decision tree, persuasive message, significance technology. involvement; health communication

I. INTRODUCTION

All aspects of business communication, persuasion is one of the concerned topics that there are many researchers have tried to study, but only a few get a clear understanding of it. Persuasion represents an essential role in people's lives and it has been studied by many researchers. [2]. Using a persuasive message is to enable audiences to understand and agree with the speaker's point of view when the speaker illustrate or restate his or her information [3]. A persuasive message happens when a person attempts to persuade an individual or a group to take some specific actions and typically includes benefits that appeal to the attentions of the audience. Persuasive messages provide various benefits such as using in marketing, medicine and education [4].

The quality education includes learners, environments and processes, outcomes that encompass knowledge, skills, and attitudes [5]. The subject of education and a persuasive technology has become interesting. Smartphone are ubiquitous including in the classroom. Lecturers across disciplines now compete with a host of Smartphone for student's attention [6]. As students were considered to be a customer. In the workplace, a persuasive message applies with the student for encouraging a change in attitudes or to persuade concentrate class using a Smartphone. The factor of affecting student is to use a mobile phone when during in the classroom [5,6]. However, some students may use these mobile phones for the course, like taking note. But some students use their phones to chat, social network or playing game. Students cannot effectively multitask in using mobile phones while they are studying. The low-achieving students were most likely to be distracted by mobile phones, [7] suggests.

As mention above, we became interested in understanding what impact this attitude has on student learning and what factors might influence that effect. We propose prediction of persuasive technology to improve a persuasive message for changing learner's attitude. This study examined persuasive messages by using questionnaires for an experimental design to study about persuasive messages, responding and impact student's attitude. According, we study a model for classification the persuasive messages for changing student's attitude using data mining technique. Data mining technique can be used to

separate and discover the valuable and meaningful knowledge from a large data. Classification is one of the most productive techniques in e-learning. Classification is a predictive data mining technique that makes a prediction about values of data using known results found from various data [8]. Prediction models have the specific aim of allowing us to predict the unknown value of interest variables give known value of other variables.

II. BACKGROUND AND RELATED WORK

A. Persuasive Message

A persuasive message [9] was a message for motivation user. Persuasive messages had to study affected and to be amenable users. It must be communicated influence over the persuasive users for changing attitudes, popularity, beliefs or behavior change. A persuasive message [10] presented text messages to alert as a useful for education. A persuasive message was a request for action. And a persuasive message is a message that is aimed at influencing an audience that is more inclined to resisting. S. Chariya [11] divided five types of persuasive communication. First, the result of persuasion message was a communication that the results were due to the persuasion or were to follow the behavior such as "you will fail an exam", "annoyed your friends", "you don't understand" etc. Second, the motivation message convinces to take on the persuasive that was intent to influence users and was an intended the choice such as "fighting", "cheer up!", "care you" etc. Third, appreciation message was a compliment, using the process of collaboration to create activities for users to do thing together. Fourth, the harassment message was a showing a negative word. It was alert to fear and damage to the user. Fifth, enforcement message was a twist someone's arm or bend to talk. Persuasive messages may appeal to logic or emotions. There are two types of persuasive messages negative and positive [4].

B. Attitude

Attitude [11] meaning was a sprightliness of human. An attribute behavior affected environmental stimulus. Attitude was a readiness to express of behavior individuals. Behavior was the sense of their experience, the parody of the person and causing a learning culture in society. Attitude is the sense of people for things that get to experience from learning, evaluating, ideas and beliefs. The attitude may lead to the expression of behavior or feeling. The importance of learner' attitudes affects to education, perceptions, knowledge, and behaviors.

C. Data mining

Data mining concepts and methods can be applied in various fields such as marketing, customer relationship management, engineering, medicine, education, web mining etc. Data mining can be applied to the education field. There are increasing research interests in using data mining techniques such as a decision tree, neural network, Naïve Bayes, and many algorithms. Knowledge mining from data can be discovered analyzing data or an important need by association rules, classifications and clustering. ata mining is an exploratory analysis scenario in which there are no predetermine notions about what will constitute an interesting outcome. Data mining tends to be prediction and description. Prediction involves using some variables or the data set to predict unknown or future values of interest. However, effective use of technology to enhance the quality of education and practice is still a very challenging problem.

Data mining techniques can be used in the educational field to enhance our understanding of studying process to emphasize on identifying, extracting and evaluating variables related to the studying process of students as described by Alaa el-Halees. Data mining is the process of discovering interesting patterns, pattern evaluation and knowledge presentation that allow the users to analyse data from the different dimension, categorize it and summarize the relationships which identified during the data mining process. In addition, data mining techniques is interested by Yadav, Bhardwaj and Pal. Researchers conducted the study on a comparative study for predicting student's performance using decision tree classifier by selecting some datasets, it was found the factors like previous semester marks, student's grade, assignment, seminar performance, attendance, lab work and end semester marks. A case study student learning behavior data analysis to predict the results and warn students of risks before their final exams is conducted by Galit.

III. HUMAN VS AUTOMATIC DATA MINING

, and Transparency for Students Does it matter whether the data mining will be performed by humans or machines? Baker et al found that, as

a substitute for video and other high-fidelity recordings, textual descriptions can be devised that serve the main purposes almost as well (Baker et al, 2005) when analysis will be done by human coders.The suggestions we have given for enriching log files should apply no matter whether humans or automated agents are performing the analysis. We can imagine that exploratory data mining will best be done by humans interacting with statistical tools. The log files need to be intelligible to both. There is a possible side benefit of improving the richness of the log file for data mining. That is allowing the capture and assessment processes within the learning environment to be more transparent. By opening up a view of the log stream to the students, they may get a better understanding of how they are being assessed. Such transparency is consistent with the philosophy of supporting open learner models (Bull, 2004) and is a subject of current research . Intelligibility of the log files to students is then a key factor in the success of the transparency in engendering understanding and trust in the system.

IV. A MODEL FOR PREDICTION

In this study, we use a data mining for prediction persuasive message models that based on a decision tree algorithm, Iterative Dichotomiser3 (ID3), C4.5 and CART algorithms. There are prediction algorithms of data mining. Data mining can be viewed a result natural evolution of information technology. A decision tree [8] is a prediction technique like a tree structure. A decision tree is based on Hunt's algorithm. The tree is constructed of a top-down recursive divide and conquer manner. A decision tree algorithm used to predict learning by classification. Classification predicts categorical labels. Classification data based on the training set and the value or class in a classifying attribute or properties that use it in classifying new data. A decision tree algorithm concludes the classification each internal node test an attribute, each branch resembles to attribute value and each leaf node assigns a classification. This method will analyze information and make a decision more accurately.

A. ID3 (Iterative Dichotomiser 3)
ID3 is an algorithm invented by Ross Quinlan [7] used to generate a decision tree from a dataset. The classes created by ID3 are inductive, that is, given a small set of training instances, the specific classes created by ID3 are expected to work for all future instances. ID3 is a supervised algorithm, builds a decision tree from fixed set samples. The distribution of the unknowns must be the same as the test cases. Induction classes cannot be proven to work in every case since they may classify an infinite
number of instances.

B. C4.5 (successor of ID3)
C4.5 is an algorithm invented by Ross Quinlan [7], to overcome the limitations of ID3 algorithm discussed earlier. It's also based on Hint's algorithm. C4.5 is avoiding overfitting the data, determining how deeply to grow decision tree, reduced error pruning, choosing an appropriate attribute selection measure and improving computational efficiency.

C. CART (Classification And Regression Tree)
CART stands for Classification And Regression Trees introduced by Briman [17]. Classification trees are used when for each observation of learning sample. Classes in learning sample may be provided by the user or calculated in accordance with some exogenous rule. It's also based on Hunt's algorithm. CART uses Gini index as attribute selection measure to build a decision tree that unlike ID3 and C4.5 algorithms because CART produces binary splits.

V. LEARNING SYSTEM COMPONENTS AND INSTRUCTIONAL PRINCIPLE ANALYSIS

Instructional principle analysis examines components of a learning system and types of instructional practices adopted at various time points or for various student groups to address such questions as:

- Which learning components are effective at promoting learning?
- Does a newly developed curriculum enable more learning than an alternative?
- What types of instructional practice are more effective in promoting learning (e.g., massed practice vs. spaced practice)?

Answering these questions entails collecting such data as student input and response correctness, student actions on learning system components over time, when and to which group a specific instructional strategy was applied, and students' performance on pre/posttests and/or delayed tests or their standardized test results. Because studying the effectiveness of different learning system components and instructional practices can contribute to the design of

better learning systems and has strong implications for student learning, it has been a key area of interest for educational data mining and analytics researchers, as evidenced by widely cited papers that reported using educational data mining to study and improve online courses (Baker and Yacef 2009).

For example, researchers and educators from Carnegie Learning, Inc. and Carnegie Mellon University have been working to build cognitive models of mathematics, which have become the basis for middle school and high school curricula incorporating the Cognitive Tutor, an intelligent tutoring system. In these systems, complex tasks are decomposed into individual knowledge components, and a model is used to follow students' actions and diagnose their strategy in solving a problem. Each action that the student takes is associated with one or more skills.In this way researchers have been able to use Cognitive Tutor data to dynamically evaluate the effectiveness of instruction at a more detailed level. Evaluations and improvements have been conducted over the past 15 years (Ritter et al. 2007).

VI.   CONCLUSION AND FUTURE WORK

In this paper, we have shown that data from questionnaires can be explained classifiers able to predict the persuasive message for changing student's attitude from the factors their personal information such as gender, age, and their satisfaction. The study compared the results obtained from the three algorithms. The results showed that the average classification correct rate for the ID3 was higher than the C4.5 and CART algorithm. The best efficiency is 98.04%, 96.73%, and 97.27%, respectively.

The results of this research study will be adapted to apply to the development of tools to use the persuasive message in teaching students in the classroom. This paper is adoption or adaptation of applications for data mining studies adjusted for the better. In our future works, we will integrate more data sources and balance positive examples in order to improve the quality of training data. The result of this paper will be used improve the studying performance like communication in the classroom or apply the developing innovation for the student.

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