

PERSONALIZED AFFECTIVE FEEDBACK TO ADDRESS STUDENTS FRUSTRATION IN ITS

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Abstract:

Abstract— The role and importance of affective states in learning has led many intelligent tutoring systems (ITS) to include the affective states of the students in their models of learners. The adaptation and thus the benefits of a ITS can be enhanced by detecting and responding to the affective states of the students. We developed an ITS model for boosting the confidence level of students by recognizing the wrong answer given by student and sending motivation messages.

Hence we use a theory Such messages are generated based on attribution theory to applaud the student's initiative, to attribute the results to the established source, In this paper, we presented a linear regression model to analyze the student's requirement of motivational messages based on their performance.

Keywords—Intelligent Tutoring Programs (ITS), Linear Regression, feedback, motivation and non-motivation message

INTRODUCTION

AN Intelligent Tutoring System (ITS) will provide personalized learning content to students which is based on their needs and preferences. An ITS consists of some content and models like the learning content, the learner model, and the adaptation engine. Learner models are constructed from the log files which are available in the ITS. The students' interaction with ITS, such as the answers to their questions, the number of attempts done by students at a task, and the time taken by the student for different activities (such as reacting or reading) are visualized in the ITS log file.

Learner models also contain students information such as the students' previous knowledge and background [1], from which it is possible to infer the students' cognitive states. The adaptation engine is used to personalize the learning content which is based on the data from the learner model. which is now well established that the learning process contains both

cognitive and affective processes [2], [3]. In this research work, focus on the response to students' frustration.

MOTIVATION

Data from few students from the few schools collected across few weeks was used for our analysis. This study suggests that motivational messages which use attribution theory and which also address the reason for frustration could reduce the number of frustration instances per session. We implemented our approach in some schools where students got interacted with the ITS

OBJECTIVE

The theory of attribution suggests that motivating the students by giving them motivational messages attributing the failure to some extinct of factors such as math, the complexity of the question would motivate them to set a new objective. We

provide feedback messages which shows empathy for the affective state of the students.

If the user does not give the correct answer, the next question will appear without any message of encouragement. If the user answers correctly, the count 0 turns 1 and so on, indicating the number of correct answers. This is used to give the students motivation and to give them encouragement

EXISTING SYSTEM

In this section, we mainly focus on the systems which is used to address and detect the students' affective states while they interact with the system. To study the effect of three types of responses to frustration – ignore students' frustration, collect feedback from students, and provide messages. The first type "Ignore students' frustration" which means it does not provide any motivational messages and does not provide or collect the feedback from the students or users .

The second type "Collect feedback" in which ITS collects the feedback from user but does not provide any motivational messages. In the third type, the system provides feedback messages which means it provides motivational messages and also provides the feedback whenever the user is in frustration. The main disadvantage is it is not a secured process.

PROPOSED SYSTEM

In this subsection, we describe the approach, that is the algorithm to display motivational messages. For the events listed in Table, that is for each goal failure, we show the messages based the time which is responded by the use to the questions of Mindsprak.

There is a limit for the messages as per Mindsprak session to three. This is to avoid the students not to focus on the feedback messages. The algorithm to show a message depends on frustration instance is viewed in

The condition to show messages for second and third instances of frustration is explained in the algorithm. The content in motivational messages is depends on the strategies followed using the attribution theory.

ADVANTAGES

By using the proposed system the main advantage is it is secured process

Which will give the motivational messages only when needed and provide the accurate feedback to the users.

The feedback is also given only when need and also provides the encouragement to students by analyzing the students performance in the sessions conducted by ITS through Mindsprak.

RESULT

Condition to Display Message	Message
E2 Challenge	You did well in the last four questions
E3	You did well in the last question
E4	You did well in the last two questions
E5	You did well in the last three questions and got a reward too!
E6	You did well in the last four questions
Res Time > Average response time	You tried hard to get the correct answer
Res Time < Average response time	Try hard
Normal Question	I am sure you will do well in the next questions
Challenge Question	You may solve it next time.

CONCLUSION

In this paper we have discussed our approach for responding to the motivational messages to frustration. Our approach have been successful. The result shows by using the attribution theory for giving the motivational messages and addressing the reason for frustration will reduce the number of frustration instance per session.

The result is statistically significant by the reduce of number of frustration. Motivational messages are used to reduce the students frustration levels per session and enabling them to avoid the negative consequences of frustration.

REFERENCES

- 1.P. Brusilovsky and E. Milln, "User models for adaptive hypermedia and adaptive educational systems" in The Adaptive Web., Berlin, Germany:Springer, pp. 3-53, 2007.
2. B. Woolf, W. Burleson, I. Arroyo, T. Dragon, D. Cooper and R. W. Picard, "Affect-Aware Tutors: Recognising and Responding to Student Affect", Int. J. Learn. Technol., vol. 3, pp. 3-28, Jan. 2006.
- 3.S. K. D'Mello, S. D. Craig, J. Sullins and A. C. J. Artif. Intell. Edu., vol. 16, pp. 3-28, Jan. 2006.
- 4.J. Klein, Y. Moon and R. W. 14, no. 2, pp. 119-140, 2002.
- 5.D. G. Cooper, I. Arroyo, B. P. Woolf, K. Muldner, W. Burleson and R. Christopherson, "Sensors model student self concept in the classroom", Proc. Int. Conf. User Model. Adaptation Personalization, pp. 30-41, 2009.
- 6.C. Conati and H. Maclaren, "Empirically building and evaluating a probabilistic model of user affect", User Model. User-Adapted Interaction, vol. 19, no. 3, pp. 267- 303, 2009.
- 7.M. Mercedes, T. Rodrigo and R. S. J. D5th Int. Workshop Comput. Educ. Res. Workshop, pp. 75-80, 2009.
- 8.J. Whitehill, Z. Serpell, Y.-C. Lin, A. Foster and J. R. Affect. Comput., vol. 5, no. 1, pp. 86-98, Jan.-Mar. 2014.
- [9] K. Brawner and B. Goldberg, "Real-time monitoring of ECG and GSR signals during computer-based training," in Proc.

Int. Conf. Intell. Tutoring Syst., 2012, pp. 72–77.

[10] W. R. Nugent and H. Social Work Practice, vol. 5, no. 2, pp. 152–175, 1995.

[11] H. Prendinger and M. Artif. Intell., vol. 19, no. 3–4, pp. 267–285, 2005. 18, no. 2, pp. 227–245, 2006.

[12] K. 18, no. 2, pp. 227–245, 2006.

[13] R. Rajendran, S. Iyer, S. Murthy, C. Wilson, and J. Learn. Technol., vol. 6, no. 4, pp. 378–388, Oct.-Dec. 2013.

[14] C. T. Morgan, R. A. King, J. R. Weisz, and J. Schopler. Introduction to Psychology. New York, NY, USA: McGraw-Hill Book Company, 7th edition edition, 1986.

[15] S. Srinivas, M. Bagadia, and A. Gupta, “Mining information from tutor data to improve pedagogical content knowledge,” in Proc. 3rd Int. Conf. Educational Data Mining, 2010, pp. 275–276.