Research Article

Development of E-Learning Feedback Model by Analyzing the Emotion Intelligence Learner Model Output Using the Artificial Intelligence

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Abstract

AI is the most robust and advance field of study which is used to generate the most recent application which will provide a better interface for human being. With respect to the application of Amazon Echo, we have developed an E-Learner model in our previous work and try to find the optimal result for emotion factor. But as we also know that the emotion is a variable factor which always get change due to because of environment and human feeling, so the chances that we can get a good data set for human emotion factor is bit difficult. Hence, in this aspect, we have taken a reference of good and efficient person for creating the dataset. In this paper we are going to utilize the result set of our previous work to develop the feedback system for out continuous improvement of system. Feedback system is another important aspect for any application using which we can came to know about the our development and we need to upgrade the system to meet the gap. Here in this work we have taken the data value of our previous work and provide the betterment of our application.

Keywords: Human Emotion; Emotion Intelligence; AI; Machine Learning, Recognition

Introduction

Lee and Song (2007) developed an e-learning system integrating emotional feedback messages and delivery method in order to examine the effects of emotional feedback for the emotional state of learners. A self-reporting button for recognizing learners' emotional state was used while learning, and the test results prove affective feedback responding to specific emotions of learners positively influence to learning achievement.

The use of emoticons along with humour and self-disclosure has been suggested to have the potential for positive emotional environment in computer conferencing by Rourke., *et al* (2001). Kim and Kim (2003) suggested an emotional bulletin board design focusing on emoticon, colour and sound to support learning motivation of community of practice in web-based learning environment.

Rha and Sung (2005) suggested four different emotionally sensitive strategies in e- Learning, based on their findings of six emotional expressions elements as shown in figure 1. Especially, pride should be noticed to appear the most in cognitive and metacognitive dimensions of messages that are related to learning.

Figure 1: Emotionally sensitive strategies.

Development of E-Learning Feedback Model by Analyzing the Emotion Intelligence Learner Model Output Using the Artificial Intelligence

11

Systematic view of emotionally sensitive instructional design

Astleitner (2000) and Astleitner and Leutner (2000) presented a systemic view of instructional design for making instruction more emotionally sound. The framework of 'Emotional Design of Instruction' presents five major dimensions of instructionally relevant emotions including fear, envy, anger, sympathy, and pleasure. Astleitner suggested that instructional designers analyze emotional problems before and during instruction, together with audience and situation analysis and the evaluation of instructional results.

The primary emotions and instructional strategies are as follows:

- Instructional strategies to reduce 'fear'
- Instructional strategies to reduce 'envy'
- Instructional strategies to reduce 'anger'
- Instructional strategies to increase 'sympathy'
- Instructional strategies to increase 'pleasure'.

The details are shown in figure 2 to 4.

Figure 2: Instructional strategies to reduce 'fear'.

Figure 3: Instructional Strategies to Reduce 'anger'.

Figure 4: Instructional strategies for sympathy increase.

Emotional and cognitive aspects of learning

Glaser-Zikuda., *et al.* (2005) have presented following five educational guidelines:

1. Self-regulated
2. Competence
3. Social interaction
4. Structure
5. Value.

These were differentiated in following ten teaching strategies:

1. Student-centred instructions
2. Activation of students
3. Differentiation of demands
4. Transparency of demands
5. Individual feedback
6. Cooperative activities
7. Play-like activities
8. Structured instruction and instructional material
9. Authentic tasks
10. Transfer to everyday life.

Rowe [1] classified strategies for 'creating a positive emotional e-learning environment to facilitate deep connection between learners and teachers to foster deep learning' in to the following three categories:

1. Connection strategies
2. Balance strategies
3. Movement strategies.

The suggestions under these categories are as follows:
Connection strategies

1. Share a teacher biography with online learners to humanize the online learning environment;

2. Remember the humanity of the online learner, and respond to the person, not just words on a screen;

3. Provide an option for synchronous interaction with learners on a weekly basis if possible (face-to-face, phone, chat, computer conferencing);

4. Provide individual comments on all assessments; not just a grade in an electronic grade book;

5. To model consistent, caring communication, provide a weekly update for all learners in an online class;

6. Provide meaningful opportunities for learner-to-learner connections to reduce the sense of isolation experienced by some online learners.

Balance strategies

1. Address life/school balance issues as part of an overall program and/or course design;

2. Be structured, but flexible, providing alternative activities or an opportunity to create an alternate schedule to meet learning objectives.

Movement strategies

1. Clearly communicate an expectation for when learners will receive feedback and honour it;

2. Initiate contact with struggling or absent learners to find out more about their situation.

In a conventional e-learning framework, the learner confronting a computer might be in a circumstance of frustration or obstruction (Despres and George 2001). This requires the usage of a smart computer tutor through the co-ordination of numerous components (assistance in learning from a human tutor and assistance to navigate and interact with human machine) for managing learning (Armory and vuilleumier 2013).

Experimental setup and description

Emotions play an eminent role in the learning process. Intelligent tutoring systems (ITS) take emotions and data mining into account, to offer new learning situations.

As we know that, today the world is a digital world. Now a day the every task is going to be done using the digital mode and hence the educational field is also became a part of it. Learning online nowadays has been growing as a mainstream educational approach 'maximizing access to and interactions with various knowledge sources' (Lee, 2005) including contents and human resources using the Internet. In the present scenario the learning is to be done not by the help of pen and paper rather we need a learner model. Here we are going to discuss how the efficient learner feedback model is going to be defined by using which the machine is going to learn from human [2]. The term E-learning is mainly used to refer the learning by machine as accordance to human thought. We might have gone through the amzon echo which is a well popular now a days for identifying the human request and according to which we are going to developed so many good and efficient model for our near future world. Today we are having so many applications around us which will helps our students starting form nursery to any higher education. To develop such efficient learning model, we have proposed a learner model which is completely based on human emotion factor. We also know that the human emotion is always variant with respect to the present situation, environment and phycology of human.

Here in our model, the output of learner model is send as input to our learner model. For the betterment of clarity we also take the input data from teacher. Whenever in practical sense we need to evaluate a student we are going to given some set of assessment and assignment to the student. Here we are going to provide a complete reference from curriculum data set being designed by the teacher. Whenever the system try to find the optimal result it matches the curriculum and then takes the decision. In our model we have taken the complete subsequent set of feedback for the learner model and based on the subsequent stages of input our model is going to deliver the proper output for our reference dataset which have given as input [3-7].
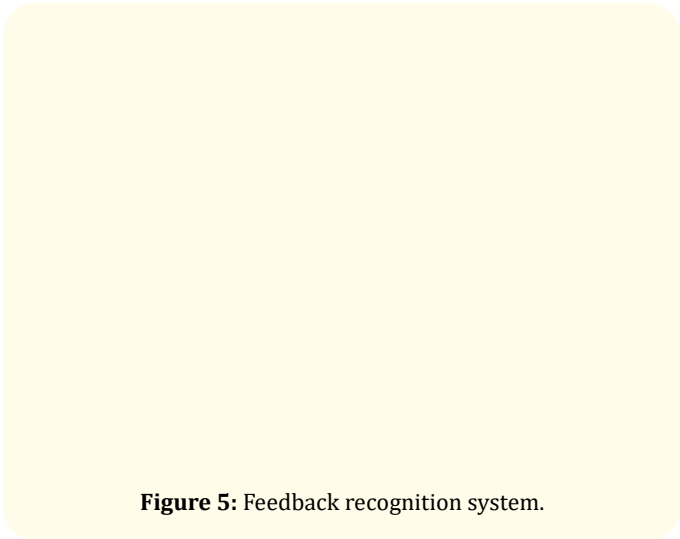
Learner I/P

Figure 5: Feedback recognition system.

Development of E-Learning Feedback Model by Analyzing the Emotion Intelligence Learner Model Output Using the Artificial Intelligence

13

Conclusion

From the above survey and analysis, we conclude that, the perception is the most major factor for emotion analysis. As per our model if the perception for a problem is accurate then we can easily calculate the emotion factor and thus the problem can be solved in efficient way. But during the evaluation of emotion certain complexities are always found. As our model basically works on three layered structure such as tutor agent, style agent and emotion agent, so the perception also became difficult at certain cases. In our model the Learner model is also used to evaluate the problem statement only when the emotional factor value is correct. Hence for our model, the dataset for the problem is to be correct. Even though the data set is having some error then also we have kept sufficient set of references at different stages to provide the valid references for our model to work properly.

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