

Emotion Model of Teenagers in Online Learning

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Abstract: *In order to overcome the difficulty of effective emotional communication between teachers and students caused by the separation of time and space in the process of online learning, this paper proposes a novel emotion model for teenagers in online learning. The emotion model is based on three dimensions: recognition, avoidance and understanding. In addition, the emotion model also combines six learning states to objectively analyze and study the emotional changes of teenagers in different learning states. The results show that the emotion model can indeed solve the emotional communication obstacles between teachers and students in the current online learning process, and comprehensively improve the learning efficiency of teenagers.*

Keywords: *Teenagers; Network platform; Online learning; Teenager emotion*

1. Introduction

At present, science and technology are in the stage of rapid development, and private individuals' daily life mode has changed greatly. The network age is changing private individuals' work style and learning mode from multiple dimensions. From a deeper perspective, at present, human society has entered the era of knowledge economy. Under this background, the common need to obtain a large amount of data and information to keep up with the trend of the times. Therefore, exceedingly one needs to take learning new knowledge as a lifelong pursuit. With the combination and development of the Internet platform and the field of education, the network education system was born. This novel learning platform can not only supplement and expand the traditional classroom learning, but also provide the main place for lifelong learning for the common of all ages. Online learning mode is real-time, open and convenient. It breaks through the limitations of time and space, collects a variety of learning resources, provides learners with personalized learning mode, and can stimulate learners' learning emotion.

Expression is not only an crucial way for the common to convey emotion, but also a subjective way to express private individuals' inner emotion. In addition, as the external expression of private individuals' inner emotional world, expression can also be regarded as private individuals' physiological response to the external world. In the traditional classroom teaching environment, teachers can infer students' inner activities from the subtle changes of students' facial expressions. For example, students' mouth curling is likely to hate the content taught by the current teachers, and students' eyes closing indicates that students are likely to lack sleep, be tired, or are not interested in the content taught by the current teachers. Obviously, with the rise of online learning platform, how to realize real-time monitoring of learners' emotional changes in online learning environment is an crucial educational topic.

2. Online Learning and Teenagers

In the process of learning, learners' expressions can reflect their inner world and their own learning state. Therefore, learners' facial expressions need to be paid more attention while learning activities are carried out. Especially for young learners, they are more likely to show their learning state on their faces, which is also a problem that educators need to pay attention to all the time.

2.1 Concept of Online Learning

Education has always been a sacred cause that emphasizes dedication, and its development level determines the future development level of the country to a certain extent. With the rapid development and wide application of science and technology, the organic combination of science and technology and education has produced online learning mode and a series of related products and services [1]. In this era, to explore online learning, we must combine the characteristics of the digital age. Online learning is one

of the crucial products of the rapid development of science and technology such as the Internet. Fig. 1 demonstrates the main technologies involved in online learning.

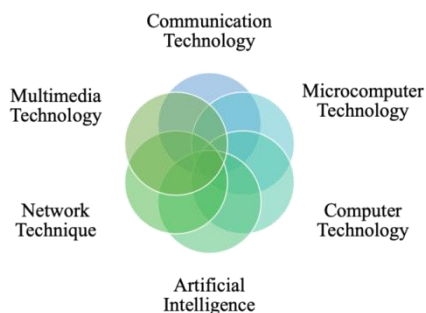


Fig. 1 Main technologies involved in online learning

Network online learning is a learning system based on computer network platform. It mainly provides teaching services for teachers and students. It can bring great convenience to teaching activities and enable teachers and students to teach and learn anytime and anywhere. It is a novel teaching mode [2]. This new teaching model breaks through the limitations of time and space and promotes educational equity. Fig. 2 demonstrates the three parts of online learning, which can be considered as a networked community.

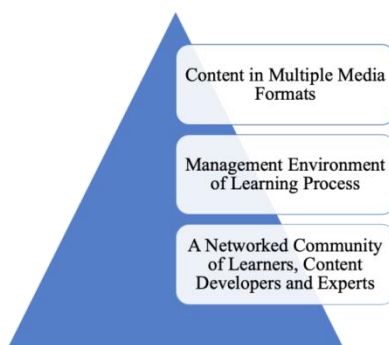


Fig. 2 The three parts of online learning

2.2 Characteristics of Online Learning

2.2.1 Openness

Different from the traditional classroom teaching mode, e-learning has high openness, which is also the basic characteristic of the Internet platform [3]. In the past, if the common want to enjoy educational resources, they must enter the classroom, which makes education have a high threshold. However, the emergence of e-learning reduces the cost and threshold of education, and even makes learning an almost zero cost thing [3]. It expands educational opportunities and shares educational resources, so that one can receive education equally.

2.2.2 Expansibility

Compared with the traditional classroom teaching mode, e-learning has higher expansibility. In the traditional offline teaching activities, students' learning places are in the class. Teachers and students have less teaching resources and less extended learning activities. However, e-learning is different. The e-learning platform gathers rich and diverse learning resources. On the network platform, each student can obtain the latest learning resources, and can also find the knowledge resources they are interested in and the teaching videos of special teachers. Therefore, whether students in economically backward areas or students who want to continue learning but do not have teacher guidance, they can obtain the learning resources they need on the online platform. From this perspective, the online learning model has made a great contribution to the fairness of social education.

2.2.3 Flexibility

With the significant increase of Internet penetration, the number of online learning users has gradually increased, covering all ages and regions. The internet-based online learning platform can continuously

serve learners, whether it is the early morning when the sky is just white or the early morning in the dead of night. As long as students want to learn, they can obtain the required knowledge resources through the online learning system. It has strong flexibility and can meet learners with different work and rest times, This is undoubtedly impossible for the traditional education model.

3. Online Learning Emotion Model

In order to more clearly understand the emotional changes of different young students in the learning process, starting from the learning scene of online learning, this paper discusses the facial expressions of young students in learning activities, and constructs a three-dimensional learning emotional model of online learning, in order to study the correlation between facial expressions and emotions.

3.1 Psychological Mechanism of Emotion Generation

Emotion, in essence, is the main way for the common to express their feelings. It is also the general name of all subjective cognitive experiences. It can be regarded as the psychological and physiological state under the action of a variety of feelings, thoughts and behaviors, such as joy, anger, sadness, fear, etc [4]. According to the analysis and research of human emotion generation mechanism, human emotion generation mechanism can be divided into two main types: emotion generation according to situation and emotion generation according to emotion.

3.2 Emotion Modeling of Online Learning

With the continuous development and progress in the field of education, the common begin to pay attention to students' mental health, so the rapidly developing psychology is also introduced into the field of teaching, resulting in a new discipline, namely cognitive teaching psychology.

Fig. 3 clearly demonstrates the learning state conveyed by students' main facial expressions during online learning.

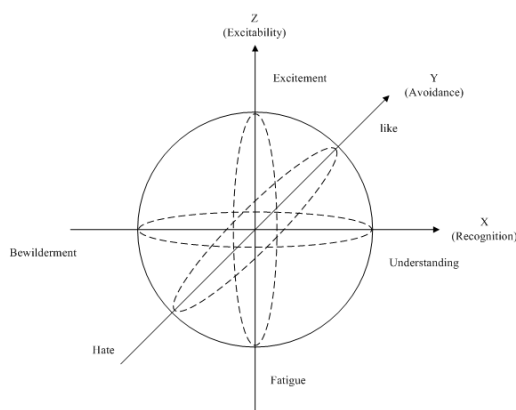


Fig. 3 Three dimensional emotion model of online learning

3.2.1 Recognition

Awareness refers to the level of teenagers' cognition of the content they are learning. The X-axis is divided into positive direction and negative direction. The former represents the level of teenagers' understanding of knowledge points. Specifically, when teenagers can better understand what they are learning, they will feel happy and have a sense of achievement, which will also directly affect their facial expressions, mainly manifested in the upward lifting of cheek muscles, the upward lifting of corners of mouth and a smile. The latter represents the level of teenagers' confusion about knowledge points [5]. Specifically, when teenagers are difficult to understand the knowledge points they are learning, they often have confused emotions, which has also become the main source of many teenagers' school weariness. Therefore, teachers and parents ought to pay attention to teenagers' facial expressions.

3.2.2 Avoidance

In this study, avoidance degree refers to the degree of interest of teenagers in the knowledge points they are learning. In the three-dimensional emotion model, the Y-axis reflects the degree of avoidance,

which is divided into positive direction and negative direction. Positive direction indicates positive emotions, that is, how much teenagers like the content they are learning. When students like the knowledge points they are learning from the bottom of their heart, their facial expressions will also show their emotions, mainly showing their eyes open and staring [6]. The negative direction represents the negative emotion, that is, the aversion of teenagers to the content they are learning. When students don't like the knowledge points they are learning, their facial expressions will convey their disgust, mainly with the corners of their mouths down and their eyebrows down.

3.2.3 Excitability

In this study, excitement refers to the mental state of teenagers in the process of online learning. It is expressed by Z-axis in the three-dimensional emotional model, which is divided into positive direction and negative direction. The positive direction indicates that the students are in a state of excitement, while the negative direction indicates that the students are in a state of fatigue. If students are in a state of excitement, their mental state is full and their eyes are bright; If students are tired, they will keep blinking and yawning, and when students are extremely tired, they will fall asleep.

To sum up, in the process of learning, teenagers' inner activities are exceedingly rich, and their facial expressions are also exceedingly rich. Table 1 describes the facial expressions of students in six learning states in detail, divides the facial expressions into cheek features, eye features and mouth features, and analyzes the correlation between the six learning states and teenagers' facial features in detail.

Table 1 Definition of learners' learning status

Learning State	Cheek Feature	Ocular Features	Mouth Features
Understanding	Cheek muscles up	The eyebrows are flat and the eyes are normally open	The lips extend outward and the corners of the Mouth rise
Bewilderment	Elongated cheeks	Frown into a splayed eyebrow	Turn your mouth down
Like	—	Keep eyes wide open	—
Hate	—	Eyebrow depression	The corners of the mouth are down and the mouth is tilted
Excitement	—	Bright eyes	The corners of the mouth rose slightly
Fatigue	—	Blink frequently or close your eyes	Often yawn

As we all know, emotions can affect a person's behavior. Good emotions can make the common work hard and energetic, while bad emotions will not only make the common depressed, but also affect the common around them. Therefore, good learning emotions will make teenagers more focused on thinking, while bad emotions will make teenagers tired of learning, and even have a negative impact on Teenagers' brain development to a certain extent.

In learning activities, educators ought to pay close attention to teenagers' learning emotions, keep exceedingly student away from negative emotions as far as possible, and let students actively think about problems and understand knowledge in a confident and optimistic mood.

However, it is worth noting that in online learning, due to the separation of time and space, it is difficult for educators to intuitively observe students' facial expressions, and it is difficult for students to convey their emotions to educators, which makes it difficult for teachers to directly judge students' learning state. The three-dimensional emotion model mentioned above can be applied to the link of online learning, which makes it convenient for educators to better understand the emotional changes of teenagers.

4. Conclusion

As we all know, emotions can affect a person's behavior. Good emotions can make the common work hard and energetic, while bad emotions will not only make the common depressed, but also affect the common around them. Therefore, good learning emotions will make teenagers more focused on thinking, while bad emotions will make teenagers tired of learning, and even have a negative impact on Teenagers' brain development to a certain extent.

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References

- [1] Liu, Weifeng, et al. "Reinforcement Online Learning for Emotion Prediction by Using Physiological Signals." *Pattern Recognition Letters*, vol. 107, 2017, pp. 123–130.
- [2] Cherewick, Megan, et al. "Study Protocol of a Distance Learning Intervention to Support Social Emotional Learning and Identity Development for teenagers Using Interactive Mobile Technology." *Frontiers in Public Health*, vol. 9, 2021, pp. 623283–623283.
- [3] Redzuan, Fauziah, et al. "Kansei Semantic Space for Emotion in Online Learning." *2014 3rd International Conference on User Science and Engineering (i-USEr)*, 2014, pp. 168–173.
- [4] MacFadden, Robert J. "The Forgotten Dimension in Learning: Incorporating Emotion into Web-Based Education." *Journal of Technology in Human Services*, vol. 25, 2007, pp. 85–101.
- [5] Marchand, Gwen C., and Antonio P. Gutierrez. "The Role of Emotion in the Learning Process: Comparisons between Online and Face-to-Face Learning Settings." *Internet and Higher Education*, vol. 15, no. 3, 2012, pp. 150–160.
- [6] Holzer, Julia, et al. "teenager Well-Being and Learning in Times of COVID-19-A Multi-Country Study of Basic Psychological Need Satisfaction, Learning Behavior, and the Mediating Roles of Positive Emotion and Intrinsic Motivation." *PLOS ONE*, vol. 16, no. 5, 2021.