

A New Hybrid Teaching Model for a Psychology Course

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Abstract—The current traditional college psychology courses only pay attention to the prevention and correction of the psychological problems of college students, but neglect to let students have a good positive emotion to learn, which is not conducive to the development of psychological potential of students, thus psychology learning cannot achieve the expected results. Based on the psychology blended teaching theory, combined with the entrepreneurial education of college students, a set of PDCA (Plan-Do-Check-Action) teaching mode which adapts to the development needs of "Internet education" is designed, and formed several new methods of teaching, such as "integration of online and offline classroom teaching". In addition, a new performance prediction model based on graph convolution neural network is proposed decision tree data mining methods are used to predict student performance, by extracting user information and high-dimensional information of the knowledge graph, this mode is conducive to platform managers to understand students' conditions in time and improve teaching quality. This teaching mode dynamically analyzes the internal relationships among learners, teachers, online classrooms, offline classrooms and it can find problems early and provide solutions. It is conducive to improving students' academic performance and learning enthusiasm, and enhancing the ability of college students.

Keywords—PDCA; psychology courses; new textbooks; entrepreneurial thinking

1 Introduction

In recent years, college students have experienced endless problems due to psychological problems. Especially in the context of COVID-19, the epidemic has caused college students to panic about the spread of the virus, anxiety about travel inconvenience, discomfort with reduced interpersonal communication, and boredom with long-term home isolation. In this case, the public psychology course is not only popular science, but also practical. In response to this, colleges are actively adjusting teaching in order to start classes smoothly in the context of the crisis and provide psychological help to college students [1]. However, college psychology courses

under the traditional teaching mode cannot achieve the effects that teachers can achieve, the teaching content is too single and the teaching in class is too boring [2]. The traditional teaching mode of psychology courses in colleges is not conducive to the long-term development of teaching effects, nor is it conducive to improving the psychological quality of students. At the same time, the current college psychology curriculum system is not perfect, the teaching fails to achieve the expected results, and it cannot stimulate students' interest in learning.

With the rapid development of modern science and technology, reasonable use of new media technology can impart knowledge to students through informatization methods [3]. In the teaching of psychology courses in colleges, the special advantage of new media can be integrated and used to improve the overall quality of psychology teaching for college students. At present, with the advent of the era of Internet technology big data, due to the outbreak of COVID-19, major colleges have postponed the opening of schools in order to protect teachers and students. However, in order not to affect students' academic performance, schools use various online teaching platforms to teach students and conduct personalized online teaching. Of course, the subject of psychology is no exception. However, some teachers are not sufficiently aware of the new psychology curriculum teaching mode. The advantages of online psychology curriculum teaching cannot be fully reflected. The data analysis of student interaction reflected on the platform is not in-depth and thorough [4], accurate teaching is not fully reflected, at the same time, the teacher's teaching mode has not formed a relatively complete system, and there is a lack of interaction with students in the teaching process. According to the literature survey, it is found that many colleges still have many shortcomings in the teaching process of psychology courses. For example, college teachers still use traditional teaching methods. This method not only lacks the ability to use psychology, but also mechanically understands the knowledge in textbooks. It cannot flexibly show the characteristics of psychology courses; in addition, teachers usually use the psychology cases in textbooks to teach students, which reduces students' interest in learning.

Based on the above-mentioned shortcomings, this research puts forward the following content:

- It draws on the traditional method PDCA (Plan-Do-Check-Action), tries to integrate this method with blended teaching and applies it in college psychology courses
- A breakthrough is proposed in a new form of textbooks suitable for blended teaching. This research is based on Internet technology and organically connects paper textbooks, online textbooks, electronic resources and online teaching platforms through QR codes. Teachers can always update the electronic resources of online teaching materials
- Based on PDCA, combined with the hybrid teaching model, it aims at constructing a new online teaching model. At the same time, in the student performance evaluation, a performance prediction mode, based on the graph convolution hybrid teaching mode, is applied

- Combining the current psychological problems of college students in entrepreneurship, it incorporates positive psychological thinking, and designs a series of e-textbook cases that will enhance students' interest. In short, this research hopes that this teaching practice can provide new ideas and objective references for psychology courses.

2 State of the Art

Psychology teaching in the college appeared in the United States first, and then it occurred in European countries, such as Germany, Britain and France. Not only in the United States, Europe also has the most advanced college mental health education facilities and services in the world. In Germany [5], the college system plays an important role as a provider and promoter of psychological professional services, and undertakes basic responsibilities such as psychological counseling. The British college psychology training mode is based on "problem-solving as the center" [6], which mainly includes three parts: the first part is the preparation before professional training, this stage is mainly professional training and experimental teaching of teachers; the second part is professional training and practice, learning specialized skills and completing practical work; the third part is advanced professional training, which requires diversified training based on actual needs. Thomas et al. [7] applied the classroom debates method to the college developmental psychology curriculum, and the evaluation shows that students believe that debate is a positive learning experience, which is conducive to the understanding and memory of knowledge.

Pike [8] reports on the use of the construction toy LEGO as an effective learning resource for undergraduate classes in the psychology of creativity. Students first attended a short series of lectures on aspects of creativity, including learner characteristics such as motivation and metacognition, and theoretical approaches to problem-finding and problem-solving including the Geneplore model and the metaphor of learning as navigation in a multidimensional conceptual space.

Teaching feedback shows that students like this learning mode very much. Snelgrove et al. [9] propose the application of modern computer technology in psychology courses. The team develops a set of 'Talking Head' video dialogue system, which is applied in nursing psychology teaching courses in the United Kingdom. In the course, a digital story based on the "Talking Head" video clip is used to simulate patients' true narration of their disease and nursing experience. The teaching results show that the teaching method can improve students' learning enthusiasm

At present, many scholars in China are studying how to improve the effects of psychology of college students. Liu [10] proposes to combine psychology with the innovative psychology needed by society, and believes that the school's innovative talent teaching curriculum can be used to combine innovation with public psychology, so as to not only promote students' psychological curriculum learning, but also can also improve the purpose of cultivating students' innovative thinking. Pei et al. [11] combine the case teaching method and the situational simulation method in the current nursing psychology teaching, and compare it with the traditional teaching

mode. They find that the new teaching mode can improve the level of students' understanding of knowledge. Zhao [12] proposes a "double-divided classroom" psychology teaching mode, which divides classroom education in half. Half of the time is taught by teachers, and the other half is freely allocated to students, allowing students to learn through mutual discussions or ask questions to teachers. The research results find that the implementation of the new mode can improve the teaching effect of educational psychology, and it is easier to learn. However, through literature review, we find that the current college psychology teaching methods are still relatively traditional, teaching cases and social development want to be separated, most of the textbooks are paper textbooks, this situation reduces students' interest in learning, and it does not achieve the purpose of cultivating college students' psychological teaching. Based on this, this research takes the innovation and entrepreneurship of college students as the teaching background, combined with the PDCA cycle mode, this research applies it in the mixed teaching classroom of college psychology, in order to provide a new perspective for the reform of related courses.

3 Psychology Teaching Based on PDCA Mixed Teaching Mode

3.1 The application of the PDCA teaching mode to psychology courses

The PDCA management method was put forward by American scholars, and later discovered and popularized by Dr. Deming, an American statistician and quality management expert. PDCA is the first letter of the words plan, do, check and action. The main feature of the PDCA management method is that it starts from P, passes through the D and C stages, and finally starts A, which continues to cycle, showing a stepped upward cycle. The details are shown in Figure 1.

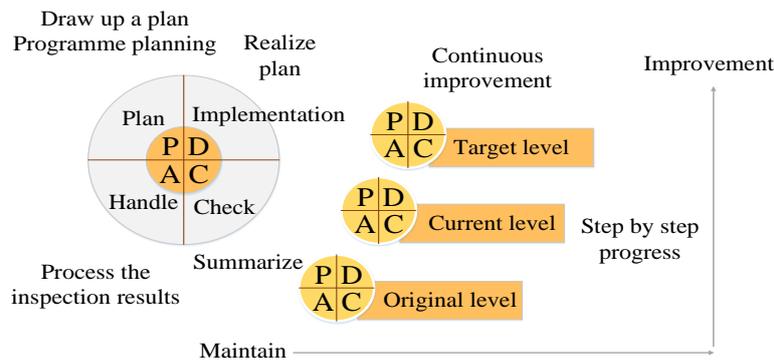


Fig. 1. PDCA cycle teaching mode

3.2 Integrating graph convolution neural network score prediction technology into psychology teaching

In fact, Fourier transform transforms the function in time domain into function in frequency domain, it is a different perspective of a function:

$$F(w) = F(f(t)) = \int f(t)e^{-iwt} dt \quad (1)$$

The meaning of this formula is that Fourier transform is the integration of time domain signal $f(t)$ and basis function e^{-iwt} , which is the characteristic function of Laplace operator Δ . Then what is Laplacian operator? Laplacian operator is the sum of all non mixed second order partial derivatives in Cartesian coordinate system x_i , and n dimensional Cartesian coordinate system's formula is as follows:

$$\Delta = \sum_{i=1}^n \frac{\partial^2}{\partial x_i^2} \quad (2)$$

The characteristic function of Laplace operator is as follows:

$$\Delta g = \lambda g \quad (3)$$

e^{-iwt} is just the solution of the characteristic equation, i.e.:

$$\Delta e^{-iwt} = \frac{\partial^2}{\partial x_i^2} e^{-iwt} = -w^2 e^{-iwt} \quad (4)$$

Characteristic value is $\lambda = -w^2$, that is to say w has close relation with Characteristic value λ . Thus, there is an important conclusion: Fourier transform is the integration of time domain signal and Laplace operator characteristic function.

In fact, we can deduce the special from the whole. Because discrete integral is a form of inner product, if we can find a Laplacian operator on graph, we can follow the above to define the form of Fourier transform on graph:

$$F(\lambda_i) = \hat{f}(\lambda_i) = \sum_{i=1}^N f(i)u_i^*(i) \quad (5)$$

f is N-dimensional vector on the graph, $f(i)$ is respond to the vertex of graph, $u_i l(i)$ refers to i component of l characteristic vector. Then the Fourier transform under the eigenvalue λ_i is the inner product of the corresponding characteristic vector $u_i l(i)$. Therefore, for a Laplacian operator on Graph, if it has N eigenvalues, then its Fourier transform can be extended to matrix form:

$$\begin{pmatrix} \hat{f}(\lambda_1) \\ \hat{f}(\lambda_2) \\ \vdots \\ \hat{f}(\lambda_N) \end{pmatrix} = \begin{pmatrix} u_1(1) & u_1(2) & \cdots & u_1(N) \\ u_2(1) & u_2(2) & \cdots & u_2(N) \\ \vdots & \vdots & \ddots & \vdots \\ u_N(1) & u_N(2) & \cdots & u_N(N) \end{pmatrix} \begin{pmatrix} f(1) \\ f(2) \\ \vdots \\ f(N) \end{pmatrix} \quad \hat{f} = U^T f \quad (6)$$

Finally, what is the Laplacian of graph? In fact, it is a Laplacian matrix. For a graph $G=(V, E)$, its Laplacian matrix is defined as $L=D-A$, L is the Laplacian matrix, D is the degree matrix (diagonal matrix) of vertices, that is, the elements on the diagonal are the degrees of each vertex, and A is the adjacent matrix of the graph.

Spectral based graph convolution maps nodes to frequency domain space by Fourier transform. Convolution in time domain is realized by product in frequency domain space. Finally, the product features are mapped back to time domain space. The convolution theorem is used here, that is, the Fourier transform of function convolution is the product of Fourier transform of function.

$$F(f * h) = \hat{f}(w) \bullet \hat{h}(w) \quad (7)$$

*is the operation of convolution, and the above one can be shown as:

$$f * h = F^{-1} \left(\hat{f}(w) \hat{h}(w) \right) = \frac{1}{2\pi} \int \hat{f}(w) \hat{h}(w) e^{-iwt} dw \quad (8)$$

This is the original version of spectrum-based graph convolution, which can also be written in the form of matrix computation:

$$(f * h)_G = U \begin{pmatrix} \hat{h}(\lambda_1) & & & \\ & \hat{h}(\lambda_2) & & \\ & & \dots & \\ & & & \hat{h}(\lambda_N) \end{pmatrix} U^T f \quad (9)$$

That is $(f * h)_G = U \left((U^T f) \square (U^T h) \right)$, \square refers to the product calculation of the corresponding position, i.e. inner product.

Based on VLE data and user statistics, this article constructs a user knowledge map. The graph convolution neural network is used to extract user characteristics and user relationship graph features, and the final assessment of students is predicted. Through the prediction results, managers can accurately locate the students with failure risk in the knowledge map and find out the existing problems. The early warning mechanism is conducive to the platform managers to timely understand the students' learning situation, and formulate relevant strategies to help students and improve the quality of teaching.

In our work, based on the data mining method of decision tree, the graph convolution algorithm of hybrid psychology course is optimized to solve the problem of irregular data convolution on the graph; secondly, combining the existing

knowledge map and graph convolution neural network, the score prediction mode of hybrid psychology course is designed, as shown in Figure 2 below.

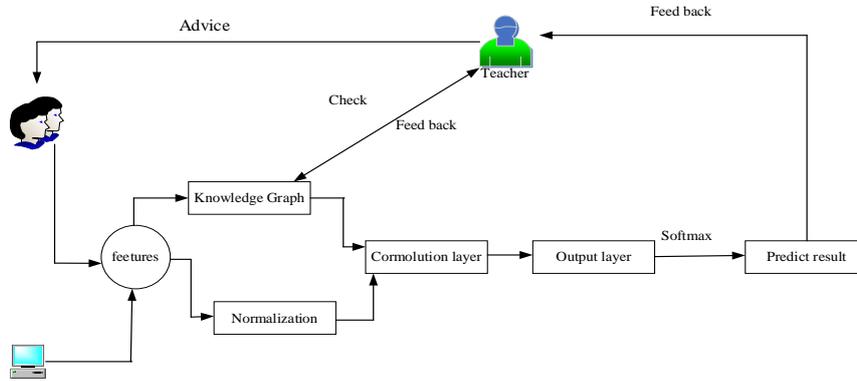


Fig. 2. Performance prediction framework based on graph convolution neural network

The framework of graph convolution neural network performance prediction mode proposed in this article is shown in Figure 2. The basic statistical information and interactive information of students are taken as node features, and the user adjacency matrix is calculated as input by the proposed user relationship mining algorithm. The forward propagation formula is as follows:

$$H^{(l+1)} = \sigma(\tilde{D}^{-\frac{1}{2}} (\sum_R N_R \times A_R) \tilde{D}^{-\frac{1}{2}} H^{(l)} W^{(l)}) \quad (10)$$

$H^{(l)}$ is input in the last layer, and $H^{(l+1)}$ is input in the next layer. $\sigma(x)$ is the activation function, and Sigmoid function and Softmax function are used here. W is the trainable weight matrix of $\mathbb{R}^{M \times D}$, M is the number of users and D is the dimension of feature.

Due to the particularity of social network, there are common connections and mutual influence among users. We use a loss function of inter group interaction to evaluate the cross entropy error of all cases, as shown in Formula 2.

$$\tau = - \sum_{l \in Y_L} \sum_{f=1}^F (Y_{lf} \ln(Z_{lf}) + n Y_r \ln(Z_r)) \quad (11)$$

Y_L is the training set label, and Z_{lf} is the prediction output of the mode. Y_r is the label of neighbor nodes in the target class, Z_r is the corresponding prediction output, and n is the influence factor of neighbor nodes. In addition, we will use Adam gradient descent algorithm to train the weight matrix W in Formula 1. Other network parameters are suggested to be set as follows: 0.4 (dropout of each layer), $5 * 10^{-4}$ (L2 regularization, Layer 1), and 50 (neurons in hidden layer).

In order to prove the superiority of the mod proposed in this article, four kinds of traditional machine learning models, decision tree (DT), support vector machine (SVM) and neural network (NN), are selected to compare with the proposed mode. Each mode is run five times on the OULAD data set, and the results are averaged and converted into percentages. In order to ensure the accuracy of the experiment, the variables are strictly controlled. The results are shown in Table 1.

Table 1. Comparison of prediction accuracy of students' scores of each mode

Model	Precision	Recall	F1-score
KNN	45.0	41.0	42.9
DT	49.0	43.0	46.0
SVM	55.3	48.6	51.7
NN	62.5	53.2	57.5
GCN	82.0 (0.3s)	80.0	81.0
Cheby	84.2 (4.84s)	83.0	83.6
Ours	85.3 (0.3s)	85.0	85.1

It can be seen from Table 1 that the three-graph convolution neural network modes are better than other known modes in accuracy, recall rate and F1 – socre. The prediction accuracy of our proposed graph convolution algorithm is 85.3%. Compared with other algorithms, this algorithm uses fast convolution and sparse matrix calculation, which greatly reduces the computational complexity and has a huge advantage in time cost.

3.3 The Combination with new teaching materials in the teaching of mixed psychology

As shown in Figure 3, the design of PDCA teaching mode makes full use of the advantages of the new form of teaching materials and follows the principle of "learner centered". In order to promote students to play their own characteristics, improve their learning habits, and participate in collaborative learning, a new "three integration" classroom mode of "integration of paper-based teaching materials and electronic teaching materials", "integration of teaching materials resources platform and teaching platform" and "integration of online and offline classroom teaching" is formed, which can dynamically analyze learners, teachers, and related teaching in and out of the classroom status data, and timely improve and optimize to form a "three integration" teaching mode. The new teaching mode puts forward higher requirements for teachers. Teachers are not only the organizers, supervisors and reviewers of teaching, but also the developers of teaching resources and the analysts of teaching status data.

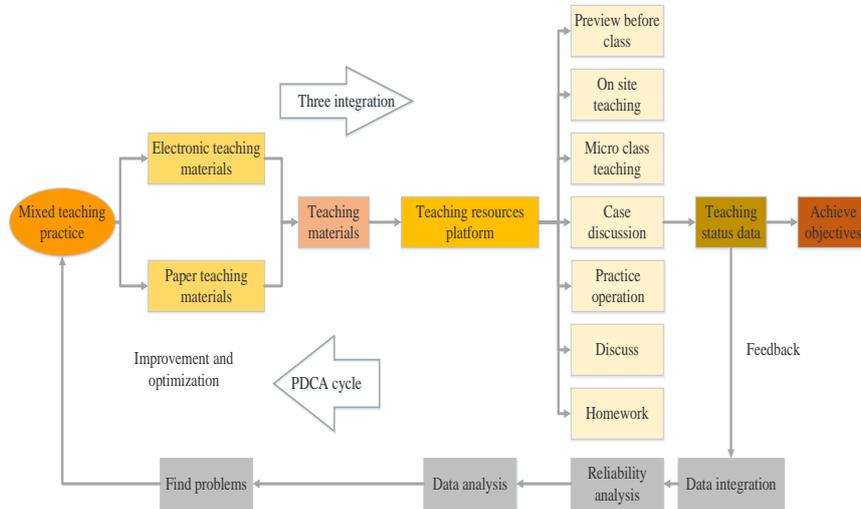


Fig. 3. "Three integration and one cycle" teaching mode based on the new form of teaching materials

4 Teaching Example and Effect

4.1 Teaching example

In this research, 96 students of Year 2019 are given teaching practice in studying psychology courses. According to the class, 48 people in Class 1 are the research group with the teaching methods introduced in this article, and 48 people in Class 2 are the control group with the traditional teaching methods. There is no significant difference between the two groups before the experiment.

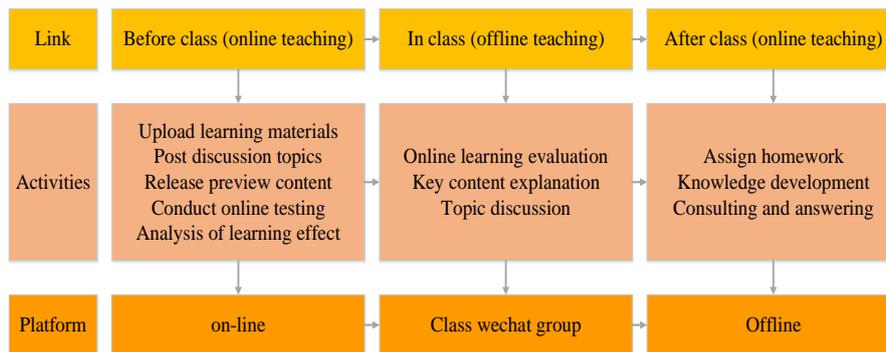


Fig. 4. The mixed teaching mode of college psychology based on PDCA

Asynchronous teaching of online teaching platform: Online teaching integrated platform is the network teaching supporting environment of teaching and learning integration network. The college organizes and manages the course construction of the platform. The online teaching platform is used to organize asynchronous teaching. One is to give full play to the function of synchronous teaching before and after class, and the other is to consider the effective connection between online teaching and mixed teaching in special period. Therefore, the online course platform mainly has the related functions, such as the release of the basic information of the course, the organization and management of the course teaching content, the interactive discussion and question answering of the course, the arrangement and marking of the course assignments, the evaluation and automatic tracking of teaching evaluation.

Class Wechat synchronous teaching: The reasons for choosing the Wechat for having class are that one is to unify the platform with other courses in the class, so as to avoid the trouble caused by students' multi-platform selection; the other is that the Wechat has complete functions, and the live broadcast and meeting can meet the needs of synchronous teaching, and it is simple and easy to use. For the key content of the course, the teacher can share PPT, video and radio to students synchronously through the Wechat live broadcast function, and we can communicate with students through video or voice through invitation to speak; after class, students can learn the key and difficult points of the course many times through the course playback. Figure 5 shows that the teacher uses Wechat to teach in the psychological teaching process.

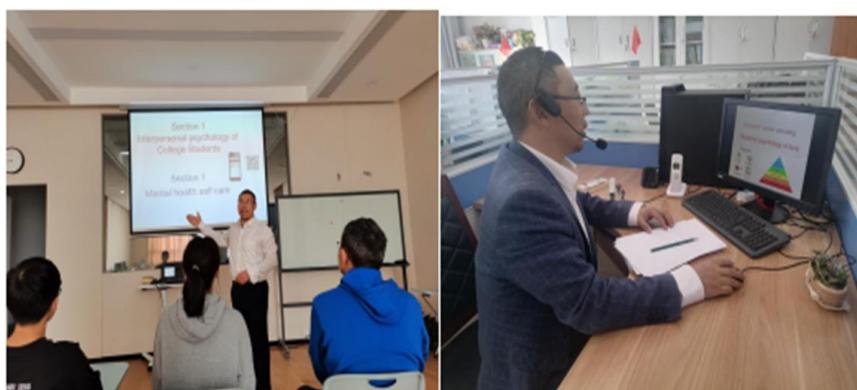


Fig. 5. Wechat synchronous teaching of psychology course

Organize teaching activities before, during and after class: Before class, teacher he uploads course guidance for each unit, previews PPT and knowledge video through online teaching platform, and sets pre-class quiz according to relevant knowledge points to test students' mastery of basic knowledge. The teacher publishes the topic discussion and guides the students to participate in the discussion and exchange before class. Students can complete the corresponding learning tasks through the computer terminal and mobile app of online class. In the online class, the teacher gives comments on students' learning situation before class through Wechat

live broadcast or meeting, and explains key content or in-depth topic discussion. After the class, the teacher summarizes and discusses the main content of the class. Figure 6 shows the after-school activities of the mixed psychological teaching mode, and Figure 7 shows the discussion of the students in the mixed psychological teaching mode.



Fig. 6. After class activities of mixed psychological teaching mode



Fig. 7. Students' discussion in psychological mixed teaching mode

4.2 Teaching effect

This is the comparison of examination results between the two groups (see Table 2). As can be seen from Table 1, the average score, final score and total score of the study group are higher than those of the control group, and the difference is statistically significant ($P < 0.05$).

Table 2. Comparison of test scores of the study group and the control group ($\bar{X} \pm S$, score)

Group	Average score	Final score	Total score
Study group (n=48)	26.1±4.8 [#]	63.2±3.9 [#]	89.3±8.7 [#]
Control group (n=48)	22.4±3.1 [#]	58.6±2.2 [#]	81.0±5.3 [#]

Note: Compared with the control group, $P < 0.05$.

This is the comparison of learning enthusiasm between the two groups (see Table 3). In terms of the number of questions, the number of discussions and speeches, the number of access to information and self-study time, the study group has higher learning enthusiasm than the control group, and the difference is statistically significant ($P < 0.05$).

Table 3. Comparison of learning enthusiasm between the research group and the control group ($\bar{X} \pm S$)

Group	The number of questions (time/one class)	Discussion and speeches (time/one class)	Final score (time/one class)	Self-learning time (h/d)
Study group	13.7±4.9	14.9±5.1	16.7±5.9	1.4±0.4
Control group	7.1±2.6	7.8±3.2	11.2±1.2 [#]	0.6±0.3

Note: Compared with the control group, $P < 0.05$.

College psychology course is one of the compulsory courses for college students. It is one of the important courses for students to complete the undergraduate practical teaching and improve the teaching quality. The course is practical and operational, and requires active learning, but the classroom time is limited. Therefore, the adaptive teaching method and adaptive modern information teaching mode are introduced into the course. It is helpful for students to study actively before, during and after class, to think independently, to solve problems by themselves, and to realize students' deeper knowledge and understanding. Therefore, it is very necessary and feasible to implement this kind of curriculum mode in psychology course. The results of this study show that PDCA hybrid teaching mode can significantly improve the final score and total score of college psychology assessment, fully mobilize students' learning enthusiasm, increase the number of students' questions, discussions and speeches, and access to materials. It has a significant impact on students' autonomous learning and personal development ability, communication ability, mastery of psychological knowledge, analysis and problem-solving ability. It is better than the traditional multimedia teaching method. The results of this study find that PDCA hybrid teaching mode applied in psychology teaching has certain teaching effect. This effectiveness is manifested in the increase of students' interest in learning, and the pressure of answering questions in class is transformed into the motivation of learning and consulting literature, which is affirmed and respected by teachers and students. This kind of teaching mode also lays a foundation for improving the quality of practical teaching, which can effectively improve the teaching quality of college psychology course and stimulate students' creative thinking in psychology. This study constructs a learning performance evaluation system, which can help teachers to evaluate students'

psychological knowledge level before teaching, and can focus on analyzing the characteristics of students with poor psychological performance, so as to give more attention to poor grades and weak knowledge in the early stage of curriculum learning, provide targeted teaching methods and improve students' learning of psychology course results.

5 Conclusion

This teaching practice is based on PDCA, according to the characteristics of online learning of college psychology courses, combined with the innovative and entrepreneurial thinking mode of college students, a new psychological online learning textbook is designed; at the same time, according to the teaching practice, in the student performance evaluation, a score prediction model based on graph convolution is applied to help teachers carry out personalized teaching. In the teaching practice, through the questionnaire survey and the student interview, it is concluded as follows:

1. The new online learning materials reasonably apply the Internet technology, and organically connect the paper-based teaching materials, online teaching materials and online teaching platform through QR code, which can effectively make up for the content that cannot be carried by the paper-based teaching materials. Teachers can update the electronic resources of online teaching materials at any time to effectively promote the teaching reform.
2. PDCA cycle teaching method combines the comprehensive advantages of multimedia, cases, problems, data access, classroom interaction, analysis and evaluation. It is recognized by students and teachers in this teaching, and can be well applied in the online courses.
3. College psychology teachers can use the new technology of network and give full play to the advantages of network video resources to improve the environment of psychology teaching. In this teaching practice, an online learning platform which can quickly spread information is constructed. Combining with traditional learning, it can promote the interaction between teachers and students, which greatly improves the students' enthusiasm and initiative in learning psychology courses.
4. Based on graph convolution neural network, this article proposes a feasible method to predict students' learning situation. The model is of great significance to the construction of online courses and the improvement of teaching quality.

6 Acknowledgement

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7 References

- [1] Liu, R.M., Chen, Y.H. Research on the Present Situation and Effectiveness of College Students'Internet-learning——Based on Network Survey Data during Epidemic Prevention and Control. *Journal of Jinhua Polytechnic*, 2020, vol. 20(4), pp. 21-30.
- [2] Wu, B.F., Wu, M.F. On the application of situational communication teaching method in college psychology classroom teaching. *Tea in Fujian*, 2020, vol. 42(2), pp. 200-201.
- [3] Gao, B. Highly Efficient English MOOC Teaching Model Based on Frontline Education Analysis. *International Journal of Emerging Technologies in Learning*, 2019, vol. 14(6), pp. 138-146. <https://doi.org/10.3991/ijet.v14i06.10160>
- [4] Doe, S. R., Gingerich, K. J., & Richards, T. L. An evaluation of grading and instructional feedback skills of graduate teaching assistants in introductory psychology. *Teaching of Psychology*, 2013, vol. 40(4), pp. 274-280. <https://doi.org/10.1177/0098628313501039>
- [5] Miller, E. The academic psychologist as a convener of information: Implications for the scholarship of integration and (online) teaching. *New Ideas in Psychology*, 2014, vol. 33(1), pp. 35-45. <https://doi.org/10.1016/j.newideapsych.2014.01.001>
- [6] Reinke, W. M., Herman, K. C., Stormont, M., Brooks, C., & Darney, D. Training the next generation of school professionals to be prevention scientists: the missouri prevention center model. *Psychology in the Schools*, 2010, vol. 47(1), pp. 101-110. <https://doi.org/10.1002/pits.20454>
- [7] Moeller, T. G. Using classroom debates in teaching developmental psychology. *Teaching of Psychology*, 1985, vol. 12(4), pp. 207-209. https://doi.org/10.1207/s15328023top1204_5
- [8] Pike, C. Exploring the Conceptual Space of LEGO: Teaching and Learning the Psychology of Creativity. *Psychology Learning & Teaching*, 2016, vol. 2(2), pp. 87-94. <https://doi.org/10.2304/plat.2002.2.2.87>
- [9] Snelgrove S, Tait D J R, Tait M. Teaching psychology to student nurses: the use of 'Talking Head' videos. *Research in Learning Technology*, 2016, vol. 24(30891): pp. 1-15. <https://doi.org/10.3402/rlt.v24.30891>
- [10] Liu, H.F. The exploration of cultivating students' innovative consciousness and creative ability in Psychology Teaching. *Modern Education Science*, 2010, vol. 26(5), pp. 95-96.
- [11] Pei, T.J., Zhang, Y.Y., Wu, M. Application of case teaching and scene simulation teaching in nursing psychology teaching. *Psychological Doctor*, 2017, vol. 23(30), pp. 321-322.
- [12] Zhao, D. Application of dichotomy classroom in educational psychology teaching. *Heilongjiang Science*, 2018, vol. 9(11):116-117.

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