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**Discussion on Teaching Mode and
Construction of International Chinese
Teaching Academic Environment Under
Background of Internet + Intelligent
Information**



Abstract: - Online Chinese teaching has become main mode of international Chinese teaching. Therefore, new requirements and challenges have been put forward for international Chinese teaching in terms of teaching modes, teaching methods, and teaching platforms. This paper investigates current situation of online Chinese teaching in our college by means of literature analysis, questionnaire survey, interview and observation, and analyzes feasibility of applying task-based teaching method to online Chinese teaching in our college. On this basis, practice of task-based teaching method is presented through specific cases, and teaching effect is evaluated and reflected from two aspects of performance evaluation and feedback evaluation. Four teaching suggestions are put forward. Through this research, we explore application of task-based teaching method to implementation mode of online Chinese teaching and provide teaching cases and practical suggestions for development of international Chinese education under new situation.

Keywords: task-based teaching method; online Chinese teaching; teaching design; suggestion

I. 1 INTRODUCTION

With development of online teaching, online teaching platforms such as Ding Talk, Tencent Conference, and Enterprise WeChat have quickly become well known to teachers and students [1,2]. International Chinese online teaching breaks through time and space limitations of traditional teaching mode and changes teaching method and teaching mode. At same time, it also brings new challenges to international Chinese education and puts forward new requirements [3]. The organization is a non-profit inter-agency cooperative organization and has established an international Chinese digital cloud service platform. The platform offers a wealth of online Chinese course resources for Chinese learners to learn.

At same time, platform also provides a variety of teaching materials, teacher training and various lectures. The courses of this platform use latest technical means, real-time tracking of students' progress, 3D animation to realize situational teaching, etc. [4] pointed out that continuous innovation of educational technology and wide application of technical means such as 5G, artificial intelligence, and big data analysis have made more and more Chinese learners can enjoy best quality teaching resources through new mode of online education. Under promotion of educational technology, international Chinese online teaching will become a major trend in future

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[5]. In process of exploring international Chinese online teaching, various problems have gradually emerged. There are two main problems: first Chinese teachers rely on teaching platform for online teaching, and its functions cannot meet particularity of international Chinese education [6]. Second, teachers have less exploration and application of online teaching tools, online Chinese teaching generally lacks teaching interactivity, and teaching efficiency is low. Most Chinese teachers copy teaching methods of traditional offline classrooms when teaching online. Teachers collect many online pictures, videos and other related teaching resources, and continuously push resources to students, forming a single mode of pushing learning resources, which lacks interactivity and interest [7]. In general, teachers' technological application ability cannot keep up with requirements of development of international Chinese online teaching, and online Chinese teaching still faces huge difficulties. [8] Therefore, it is necessary to conduct applied research on current online teaching platforms and online teaching tools suitable for international Chinese education, to help Chinese teachers to further explore online teaching and improve teaching effectiveness. As an effective teaching method, task-based teaching method has been practiced and discussed by many experts and front-line teachers in improving quality of teaching and has had a significant impact. The "student-centered" teaching mode advocated by task-based teaching method has changed "full classroom" in traditional classroom, organically integrated "teaching" and "learning", and guided students in "learning by doing" through teachers. It provides a relaxed, practical, and interesting classroom environment, mobilizes enthusiasm of learning, and cultivates learners' comprehensive ability to use Chinese, which greatly improves quality and effect of teaching [9]. On this basis, many teachers and scholars have also begun to try to use task-based teaching method to improve current situation of online Chinese teaching.

After a period of teaching practice and observation and exchange of students, it is found that learners have strongest learning motivation in improving Chinese communicative competence. However, due to limitations of online teaching and teaching methods commonly used by teachers, they cannot meet needs of students to greatest extent. Learning needs, teaching status urgently needs to be changed [10]. Therefore, this paper hopes to take advantage of this internship opportunity, give full play to advantages of task-based teaching method, and carry out design and practice of online Chinese teaching under guidance of concept of task-based teaching method, to improve quality of teaching and enrich task-based teaching method for online Chinese teaching. Research on teaching applications.

II. ONLINE TEACHING STRUCTURE

Language teaching is not only a process of knowledge dissemination, but also a social and cultural dissemination process. Lass wall (H. D. L as wall) proposed "5W" formula P, which explained five basic elements in process of mass communication: Who (teacher or other information source), Say What (teaching content), In Which Channel (teaching media). / Teaching approach), To Whom (teaching object) and With What Effect (teaching effect), this is main problem to be solved by our teaching design. On another level, it can be understood as learning content analysis, learner analysis, selection of teaching media and teaching evaluation in teaching design. In 1960, based on Laswell, SMCR propagation model was studied and proposed, D: Source-Message-Channel-Receiver. As shown in Figure 1.

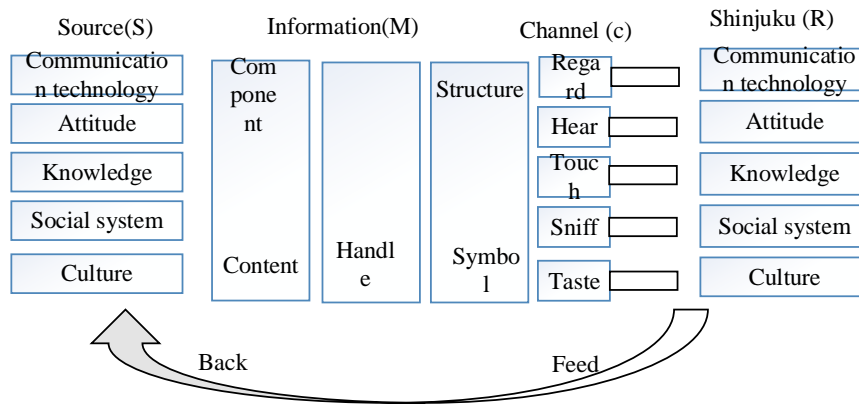


Figure 1 Bello's smart propagation model

In process of teaching design, how to analyze, coordinate and control each factor is basis for designing an effective teaching plan. Based on this principle, combined with task-based teaching method, this paper designs an application model diagram of teaching process based on mobile Internet terminal design, as shown in Figure 2

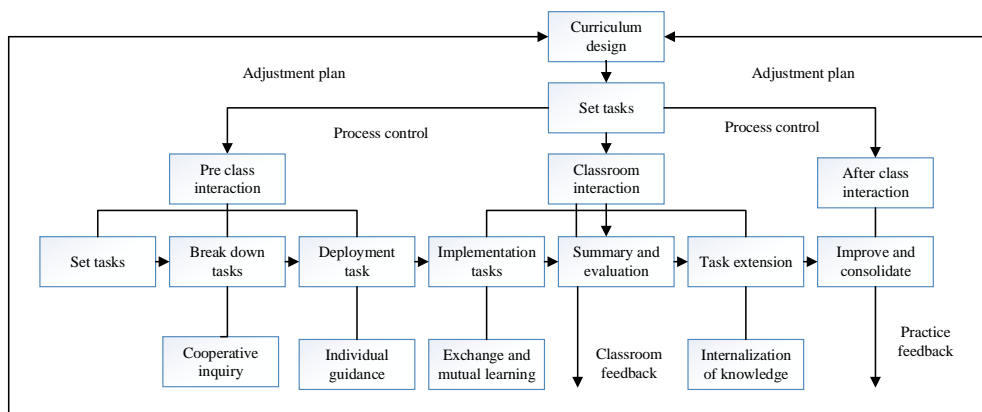


Figure. 2 course design mode based on mobile teaching

The "structure-based comprehensive teaching model" and "structure-function-based skill-based teaching model" are represented in form of diagrams (Figures 3 and 4) as follows:

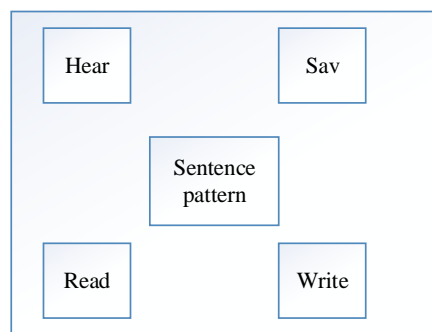


Figure 3 comprehensive teaching mode based on structure

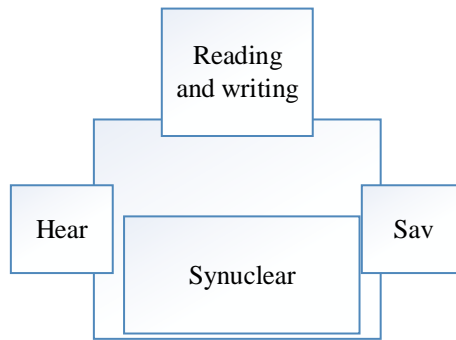


Figure 4 structure function-oriented teaching mode with different skills

The integration of four skills in American AP Chinese teaching model is not equivalent to "comprehension". The traditional comprehensive teaching mode generally adopts a single teaching activity such as sentence pattern drill. It does not pay attention to integration of four skills and applies them to expressing meaning "Communication" activity. The integrated teaching mode is shown in Figure 5 below:

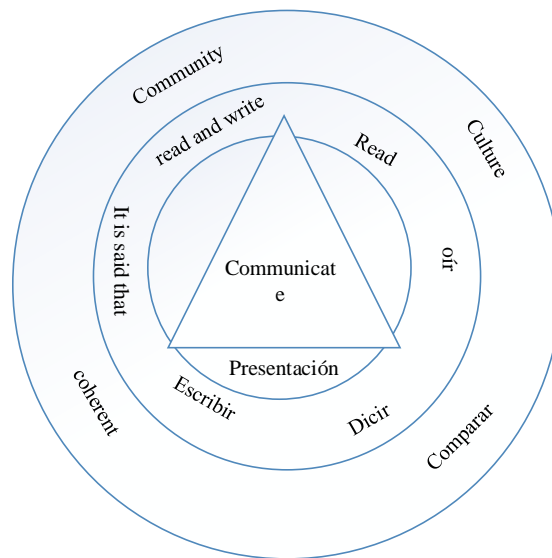


Figure 5 AP Chinese teaching mode in United States

To sum up, hierarchical framework of teaching mode of Chinese as a second language/foreign language teaching is shown in Figure 6 below:

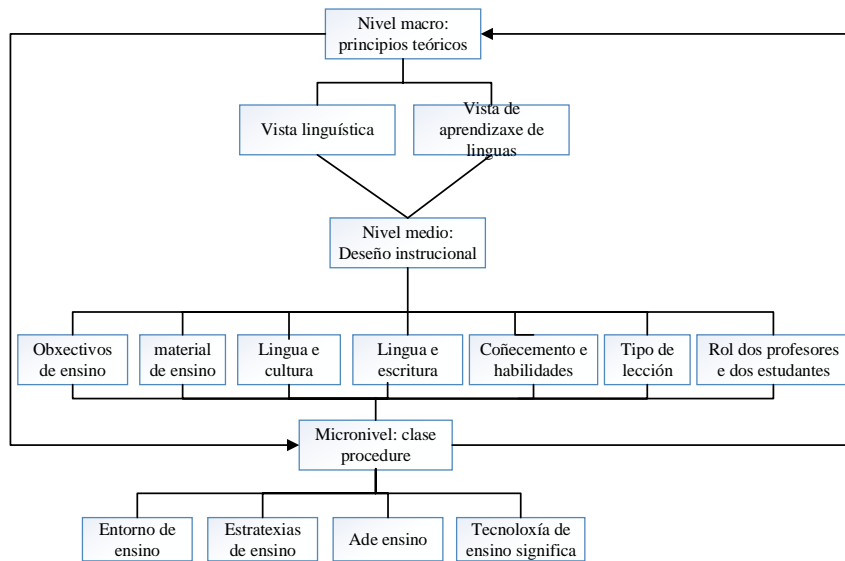


Figure 6 teaching mode: three-level framework

III. 4 IMPROVE EFFICIENT NET ALGORITHMS

(1) 0-1 loss function: The 0-1 loss function is a conditional identity function, which is mostly used in perceptron's. It can be directly used to determine number of correct and incorrect identifications for corresponding classification, that is, when predicted value and target value are equal output is 0, and output is 1 if they are not equal. Its expression is:

$$L(Y, f(x)) = \begin{cases} 1, Y \neq f(x) \\ 0, Y = f(x) \end{cases} \quad (1)$$

(2) Logarithmic loss functions The logarithmic function does not have strong robustness, but it is very sensitive to noise, so it is often used as loss function of logistic regression. The logarithmic loss function can represent probability distribution very well in multi-class scenarios, and it is very suitable for judging confidence that result belongs to each class. The expression is:

$$L(Y, P(Y| X)) = -\log P(Y| X) \quad (2)$$

(3) Hinge loss function output value of hinge loss function can be very intuitive to judge performance of classification. If classification is correct, output is 0, otherwise output is 1-y(x), and support vector machine (Support Vector Machine, loss function used by SVM model is hinge loss function. Its expression is:

$$L(y, f(x)) = \max(0, 1 - yf(x)) \quad (3)$$

(4) Cross Entropy Loss function

Under condition of Bernoulli distribution, cross-entropy function can be derived by using maximum likelihood function. In deep learning binary classification problems and multi-classification problems, cross-entropy loss

function is used.

In binary classification problem, since there are only positive and negative classifications, probability of positive and negative classes can be expressed as:

$$p(y_i = 1 | x_i) = \hat{y}_i \quad (4)$$

$$p(y_i = 0 | x_i) = 1 - \hat{y}_i \quad (5)$$

Using hypothesis method, calculate likelihood of independent and identical distribution between data points, and minimize negative likelihood after taking logarithm of likelihood, function expression of cross-entropy loss under binary classification problem can be obtained.

$$NLL(x, y) = J_{CE} = -\sum_{i=1}^N y_i \log(\hat{y}_i) + (1 - y_i) \log(1 - \hat{y}_i) \quad (6)$$

In multi-classification problem, number of categories is expressed as K , and $k \in K$ is used to denote kth category, then probability of kth category is expressed as:

$$p(y_i | x_i) = \prod_{k=1}^K (\hat{y}_i^k)^{y_i^k} \quad (7)$$

Using calculation ideas in two-class problem, function expression of cross-entropy loss in multi-class problem can be calculated as:

$$NLL(x, y) = J_{CE} = -\sum_{i=1}^N \sum_{k=1}^K y_i^k \log(\hat{y}_i^k) \quad (8)$$

The formula is

$$\text{Gelu}(x) = xP(X \leq x) = x\Phi(x) \quad (9)$$

Where $\Phi(x)$ refers to cumulative distribution of Gaussian normal distribution of x , formula can be expressed as:

$$\text{Gelu}(x) = x \int_{-\infty}^x \frac{e^{-\frac{(x-\mu)^2}{2\xi^2}}}{\sqrt{2\pi\xi}} dx \quad (10)$$

μ, ξ in formula represents mathematical expectation and standard deviation in normal distribution $N(\mu, \xi)$,

respectively, which can be approximated after calculation.

$$\text{Gelu}(x) = x\xi(1.702x) \quad (11)$$

x is positively correlated with $\Phi(x)$, and activation transformation depends on input. When x is smaller, activation result is more likely to be 0, and probability of being discarded will be higher, while larger x is, more likely it is to be retained. In this way, Gelu function not only preserves output probability, but also preserves input dependency.

The main network Efficientnet-B5 extracts expression feature map and denote it as $F_1 = [X_1, X_2, \dots, X_N]$ the self-attention weighting module takes F_1 as input, and feature vector extracted after going through lower FC layer is:

$$Y_j = X_j w + b \quad (12)$$

Among them, Y represents final feature output, X represents feature map output by j two expression image through last layer of network, w is weight item, and b is bias item.

At same time, upper self-attention module takes F_1 as input and outputs a weight in range of 0 to 1 for each feature map, as shown in Eq. (13).

$$\beta_j = \sigma(W_a^T X_j) \quad (13)$$

Among them, β_j represents weight of j to sample, W_a^T represents parameters of FC layer of self-attention mechanism, and σ represents sigmoid function.

Therefore, using β_j to weight Y_j can get weighted feature vector Y'_j of j to sample:

$$Y'_j = \beta_j \cdot Y_j \quad (14)$$

The weighted feature vector Y'_j is input into a multi-layer perceptron (MLP) with a 4-layer structure, including an input layer, an output layer and two hidden layers. After calculation, output of first hidden layer can be obtained as:

$$\begin{cases} Z_{j1} = W_1 Y_j' + b_1 \\ h_{j1} = \text{Gelu}(Z_{j1}) \\ H_{j1} = \text{dropout}(h_{j1}) \end{cases} \quad (14)$$

Z_{j1} represents weighted feature vector of the j to sample Y_j' passes through output of first FC layer of MLP, W_1 and b_1 represent weight and bias of first FC layer, respectively, h_{j1} represents Gaussian error linearity through first hidden layer. The output after activation of unit, H_{j1} represents output of feature vector of j to sample after passing through dropout of first hidden layer, and it is also output of feature vector of the j to sample after passing through first hidden layer of MLP.

Similarly, output of second hidden layer can be obtained:

$$\begin{cases} Z_{j2} = W_2 H_{j1} + b_2 \\ h_{j2} = \text{Gelu}(Z_{j2}) \\ H_{j2} = \text{dropout}(h_{j2}) \end{cases} \quad (15)$$

Z_{j2}, h_{j2}, H_{j2} represents parameters of feature vector of j to sample when it passes through second hidden layer of MLP, where W_2 and b_2 represent weight and bias of second FC layer, respectively. As can be seen from equation (11) in previous section, Gelu function is characterized by a positive correlation between input and output, that is, when input is larger, output is larger, and smaller input, closer output is to 0. At this time, after activation of Gelu function, feature vectors with higher weights are easier to be retained, thereby improving accuracy of facial expression recognition.

The hidden layer to output layer can be regarded as a multi-category logistic regression, namely SoftMax regression, so feature vector of j th sample passes through output out_j of output layer and is expressed as:

$$out_j = \text{softmax}(H_{j2}) \quad (16)$$

The MLP network adopts back-propagation error method in training process. The training sample features are passed in from input layer, and after being processed by hidden layer, results are transmitted from output layer.

IV. RESULTS

Through interviews and investigations, there are currently 14 online Chinese teachers in our school. Except for two remaining volunteers, rest of online Chinese teachers are in China or other countries. Among them, there are 3 teachers with professional background in Chinese International Education, and remaining 11 teachers are all

Spanish-related professional backgrounds. As shown in Figure 7

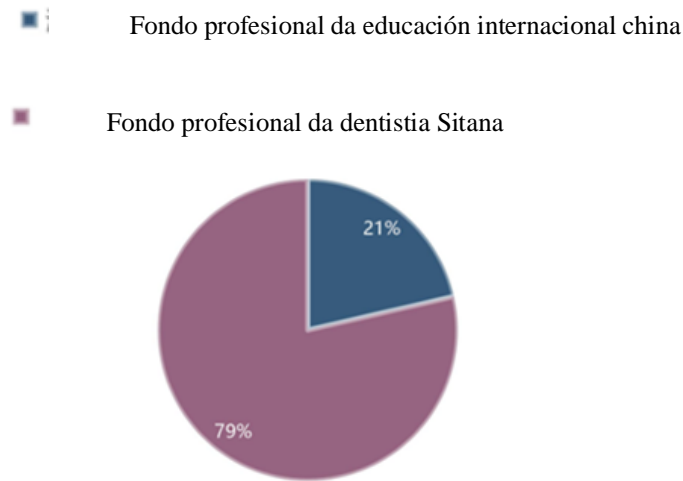


Figure 7 professional background statistics of Teachers

In selection of teaching methods, whether it is online classroom or offline classroom, traditional grammar translation method and listening and speaking method are teaching methods that all teachers will choose. At end of each unit, according to teaching requirements, teachers will add communication exercises related to theme of this unit, which are mainly used in "oral practice" stage after each lesson. At present, no teachers in our school have used task-based teaching method to teach online or offline. Figure 8

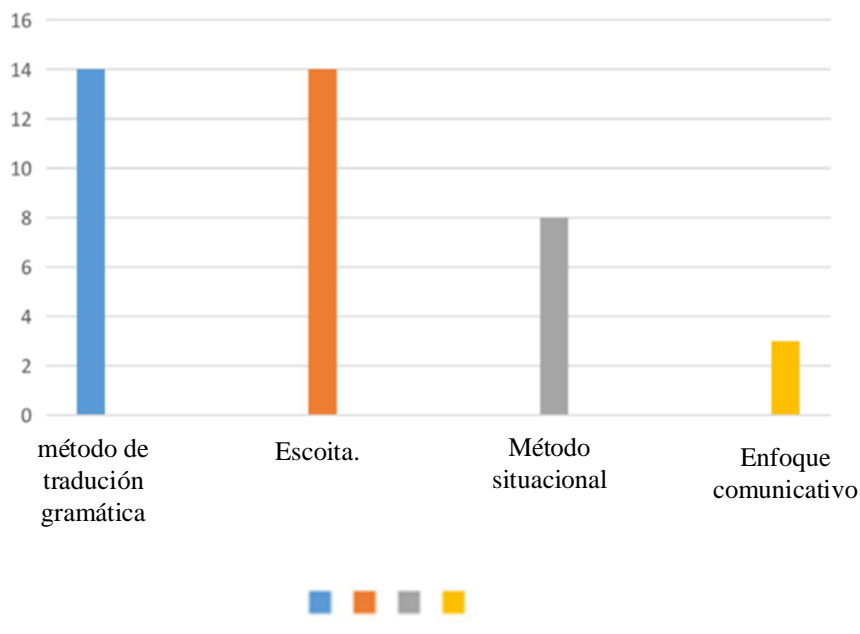


Figure 8 statistics of teaching methods used by teachers

Regarding answer to question "Do you know/understand task-based teaching method?" in interview outline, except for 4 teachers, rest of teachers expressed that they had "heard of" but "never used" task-based teaching method; At present, no teachers in our school have used task-based teaching for online Chinese teaching. as

table 1

Table 1 teachers' understanding of task-based teaching method and statistics of online teaching use times

Question 3: Do you know / understand task-based teaching method?	Tipo	Numeri	Proportion
	Heard about it	10	64.3%
	understand, learned before	5	28.5%
	Never heard of	2	7.2%
Question 4: Have you used task-based teaching in your online classroom? If so, how do you think it is different from offline implementation?	Used	0	0
	Never used	16	100%

The relevant answers to question "How do you improve interactivity of classroom?" are organized as follows:

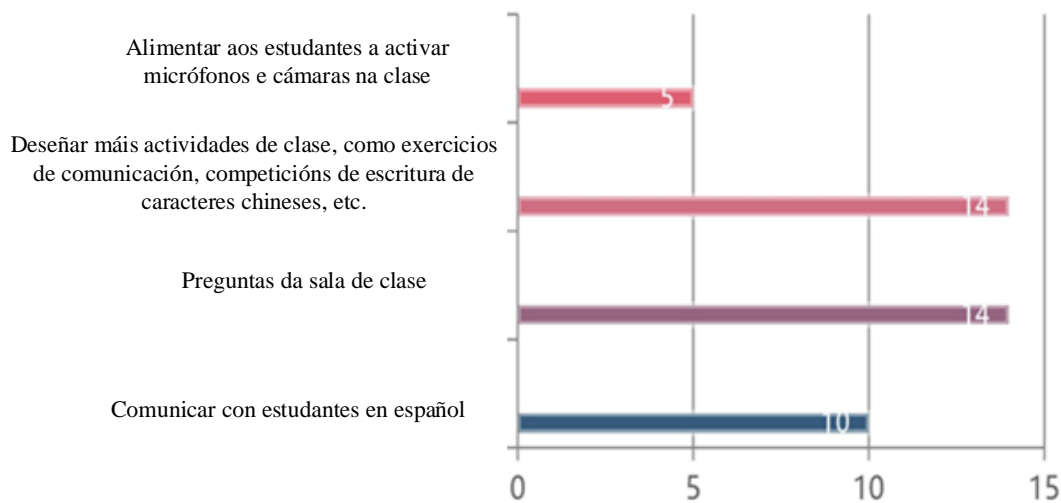


Figure 9 statistics of teachers' classroom interaction

According to interview content and statistics in Figure 9, in "classroom interaction methods used by teachers", all teachers will use "classroom questions" and "design classroom activities" to increase number of teacher-student interactions; responsible for zero-based and elementary class teaching Teachers who are more likely to use Spanish as a classroom language to communicate with students. In addition, some teachers have tried to use continuous microphone and video interaction functions of Avatar platform to encourage students to turn on microphone and camera to interact with teachers in classroom, but actual situation is often unsatisfactory. Students are reluctant to actively turn on microphone or camera to communicate in class, and interaction in classroom is difficult to achieve expected effect. This situation not only fails to meet students' learning needs of "wanting to enhance Chinese communication skills", but also fails to effectively achieve teacher's teaching

goals.

Table 2 Statistics of teachers' satisfaction with classroom interaction

Are teachers satisfied with effects of current classroom interactions?	Tipo	Numeri	Proportion
	Satisfy	3	14.4%
	Satisfied	5	28.5%
	Not so satisfied	8	50%
	Dissatisfied	2	7.2%
Are teachers willing to try new teaching methods?	Willing	16	100%
	Unwilling	0	0

Regarding survey results of "Teachers' Satisfaction with Classroom Interaction", more than half of teachers expressed dissatisfaction with current teaching interaction. In fact, many teachers have raised and discussed issue of "how to effectively improve classroom interaction" many times when participating in this survey and regular meeting. Teachers all hope to learn new teaching methods to increase classroom interaction and improve online learning. The quality of teaching; some teachers also put forward in interview that they hope to "have practical cases to show how new teaching methods are used, not just theoretical things." Therefore, diversified and flexible use of appropriate teaching methods and teaching models can help to enhance initiative and self-confidence of learners in expressing and communicating in Chinese, and to improve interaction of classroom are problems that teachers in our school need to solve at present. See Table 2

Table 3 common teaching methods of teachers (multiple choices)

What is your teacher's usual style of teaching?	It is explained in order of textbook, with little practice.	While explaining in order of content of textbook, there are many vocabulary and grammar exercises, such as sentence substitution and filling in blanks.	While explaining content of textbook, there will be many group communication activities and exercises, sometimes not in order of textbook.
Subtotal	32	29	8
Percentage	60.78%	55%	13.72%

Table 4 which teaching method do you prefer (multiple choice%)

Which method do you prefer teachers use to teach classes?	It is explained in order of textbook, with little practice.	While explaining in order of content of textbook, there are many vocabulary and	While explaining content of textbook, there will be many group communication
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		grammar exercises, such as sentence substitution and filling in blanks.	activities and exercises, sometimes not in order of textbook.
Subtotal	16	20	33
Percentage	30%	37.26%	62.75%

From perspective of students, it can be concluded that at present, most teachers still follow sequence of textbooks and use traditional teaching mode to teach, that is, according to arrangement of textbooks, they teach in order of "new words (Chinese characters) - grammar - text - culture". At same time, some mechanical and semi-mechanical exercises are assisted, and awareness of students' learning autonomy and Chinese communicative ability is insufficient. From students' inclination towards teaching methods, it can be seen that most of students have a certain sense of self-learning and hope to change teacher's teaching methods and methods and improve their Chinese expression and communication skills through classroom interaction. Therefore, it is necessary for our teachers to innovate teaching methods. See Table 3 and Table 4.

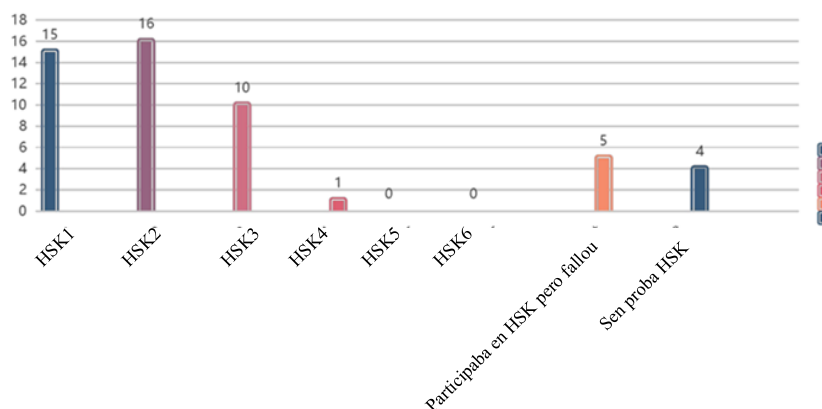


Figure 10 statistics of HSK passing of learners

■ <1 year ■ 1-2 years ■ 2-3 years ■ 3-4 years ■ >4

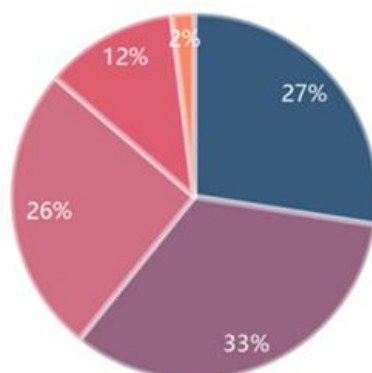


Figure 11 duration of learners learning Chinese

According to above survey results and actual situation, it can be known that most of learners have participated in HSK at present, among which number of people who have passed HSK level 2 is largest; most of learners have studied for about 1 to 2 years. In addition, according to actual situation of class distribution, in lower grades CHINO1 and CHINO2 (i.e., first and second grades), number of classes and largest number of students can reach 7 classes in one grade; CHINO 3 and CHINO 4 On average, there are 2 classes in a grade; and in middle and upper grades, there is only one class in a grade from CHINO 5 to CHINO 8, and even total number of senior students is far less than that of a lower grade. Most of learners' Chinese proficiency is at primary and intermediate level, and a considerable number of students no longer choose to continue their studies after finishing primary level. There are many reasons why students do not continue to learn a language, including difference between target language and mother tongue, learning methods, teaching environment, costs, etc., only based on above data to understand some students cannot infer specific reasons. See Figures 10 and 11

V. CONCLUSION

This paper finds that traditional teaching method used by most teachers leads to problems such as low opening rate and dull classroom in classroom and cannot meet learning needs of learners. Combined with online Chinese classroom, this situation will be changed. In early stage, relevant literature review and theoretical knowledge were systematically sorted and briefly described to provide theoretical support for development of teaching activities; then through questionnaires, interviews and classroom observations, feasibility of applying task-based teaching method to our hospital was analyzed. On this basis, task-based teaching method is applied to design and implementation of online Chinese teaching. Through teachers' performance evaluation and feedback evaluation of teaching effects, it is concluded that task-based teaching method does improve quality and effectiveness of online Chinese classrooms. Sexuality plays an important role. Finally, suggestions are put forward from four aspects: classroom atmosphere, teaching interaction, network platform and teachers' network literacy, in order to provide some practical reference for future research on application of task-based teaching method to online Chinese teaching.

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