

Interactive Teaching Design in Future Classroom Environment: A Case Study of *Purple Wisteria Waterfall*

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Abstract

Interaction is the core in the future classroom. Teaching in the future classroom environment will make more demands and challenges for teachers. Based on the future classroom environment of East China Normal University, this paper takes a Junior 1 Chinese lesson *Purple Wisteria Waterfall* as an example to describe in detail how to carry out interactive teaching design in future classroom environment.

Key words: Future classroom; Interaction; Teaching design; Case study

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INTRODUCTION

German social psychologist Kurt Lewin has pointed out that behavior is produced by the mutual influence between individual internal factors and individual environment, which can be expressed as “behavior = f (people, the environment)”, referring to that behavior is a function of the interaction between people and the environment. From this we can see that, environment is very important for human development and different environments have different effects on people; therefore, we can deduce the effect of different classroom environment on students is not the same. Traditional classroom cultivates traditional

talents. In the 21st century, new challenges require new main battlefield; thus, the concept of future classroom is proposed.

To Comprehensively summarize the definition of future classroom from experts and scholars home and abroad, the future classroom refers to the environment and activities based on humanism, interaction, environmental psychology and other theories and information and supported by intelligence, human-computer interaction and other technology to fully play the role of various elements of classroom composition (people, technology, resources, environment and methods, etc.). In terms of the positioning, features, design, implementation and other aspects of the future classroom, scholars have conducted a lot of research; however, teaching design based on the future classroom environment still lacks corresponding research.

This paper takes the future classroom environment constructed by East China Normal University as an example to discuss how to design interactive teaching in the new technological environment.

1. INTERACTIVE TEACHING ENVIRONMENT IN FUTURE CLASSROOM

East China Normal University future classroom was built in 2009 and is a subproject of the 985 second phase construction project “Constructing Teacher Education Innovative Advantageous Disciplinary Platform”. The main objective of the project is to study and design new classroom structure and intelligent design, teaching and learning model, strategies and evaluation which meet the cultivation of future innovative talents and support the new basic education curriculum reform.

The design, opening and the application of future classroom teaching and learning environment is inseparable from cognition, interaction, activities, humanism, environmental psychology and other relevant

theories and the support of information technology, artificial intelligence, human-computer interaction and other advanced technologies. Its goal is to leverage the classroom elements (people, technology, resources, environment and methods, etc.), with interaction as the core, and fully play the initiative of classroom subjects to achieve a harmonious and free development of the classroom subjects. The concept of interactive teaching covers the above theoretical basis, combines with the interaction of a variety of situations to mobilize resources to serve the future classroom.

2. THE CONCEPT OF INTERACTIVE TEACHING DESIGN

(a) The interaction between people: not only just the teacher-student interaction but also student-student interaction and teacher-teacher interaction (teachers and teaching supporters). For example, the teacher can allow students to hold electronic terminals to interact in the group depending on the course.

(b) Interact between people and the environment: the future classroom puts emphasis on people orientation and is concerned about the individual freedom and development of students. It is equipped with a mobile learning environment: adjustable classroom lighting, color and temperature, and the selection and arrangement of chairs can also be flexibly adjusted. For example, at the height of Grade 1 student and the classroom content, we can adjust the position of tables and chairs.

(c) Interaction between people and resources: The course teaching in future classroom can not only render the default resources, but also produce a large amount of generated, dynamic resources in the classroom teaching. For example, students' constructive answers can be saved directly on the whiteboard or terminal and reserved for teaching resources for future use.

(d) Interaction between people and technology: It can be reflected on that students can conduct technical treatment through the whiteboard or push resources in the terminal to combine the two; interaction between technology and technology is designed to provide learners with adequate technical background service environment. For example, when teachers and students are in the class, we can use classroom record skills and digital recording system to collect classroom video.

3. THE MAIN FEATURES OF THE FUTURE CLASSROOM ENVIRONMENT

Based on the interactive teaching design concept, the author designs the physical and virtual environments of the future classroom and puts the theory into practice. According to the future classroom teaching environment,

the author summarizes the main features of the future classroom.

3.1 Multi-Screen Learning to Display the Environment

Future classroom provides a multifunction machine, multimedia stand screen and interactive whiteboard. The integrated use of these screens makes classroom content presentation more structured and logical. When students are in the class, they can see the structured teaching process in the linked multi-screens which is more conducive to the internalization of their knowledge.

3.2 Ubiquitous Network Support Environment

In order to conduct better interaction between people and resources and technology, ubiquitous network support is essential. To build a good network environment enables the whiteboard the teacher uses and the terminals that students use have a good connection. It also promotes the collaborative learning between students. It allows resources and technology to get closer to the actual teaching environment and become good scaffoldings.

3.3 Removable Open Environment

Free movement of tables and chairs, a free packet group members, free discussion of students—the movable learning environment offers the possibility of all these. The classroom is not a fixed arrangement and is more personalized in line with the needs of each student. Even the height of the desks and chairs can also be self-adjusted. Removable, personalized open environment creates a free atmosphere for future classroom.

3.4 Centralized Background Service Environment

Background systematic combination of resources provides services for the whole future classroom environment. It provides remote servers, video conferencing systems and recording system. The cloud platform containing extensive educational data can provide a wealth of learning resources so that teachers can randomly use these resources and apply them to classroom teaching.

To sum up, we have discussed interactive teaching philosophy and future classroom established based on this. The author designs a lesson based on such environment so as to deepen understanding of the concept. Before showing the lesson design, the author would like to use the following graph to describe an interactive teaching environment in detail. Future classroom teaching environment has provided the teaching space of the teacher and the group learning space of future learners. The classrooms are arranged with two interactive whiteboards and an interactive projection display screen, four group learning screens, and 16 movable desks and chairs. The recording system is on and the wireless environment is also on to get ready for class.

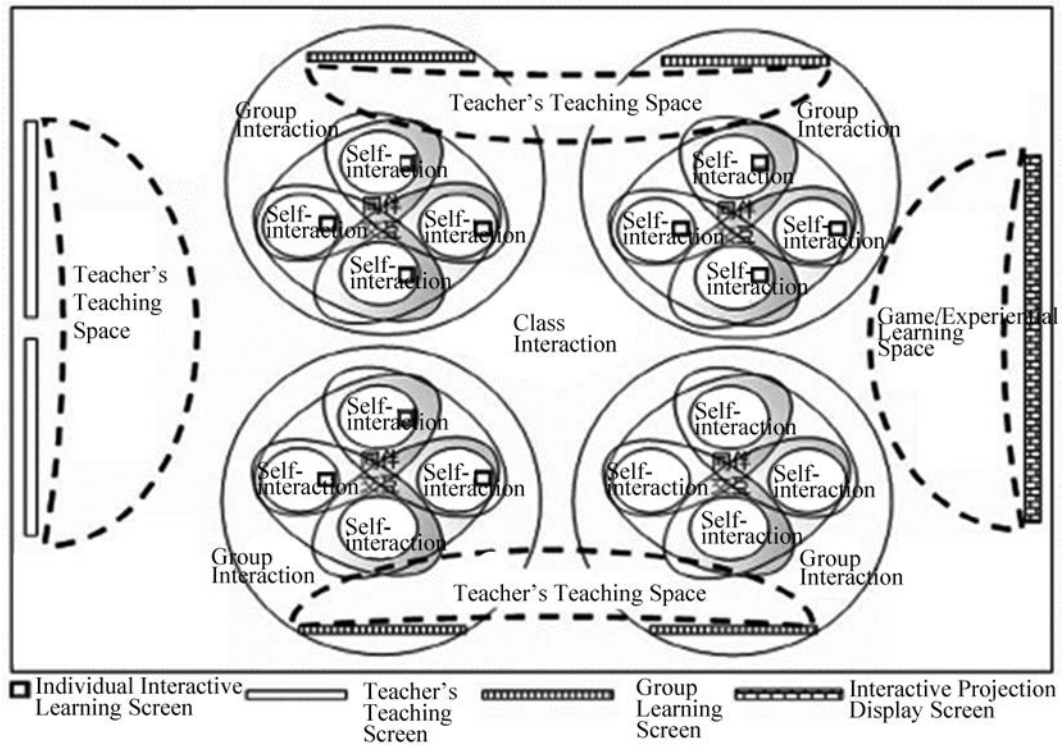


Figure 1
Teaching Space and Group Learning Space of Future Learners

4. INTERACTIVE TEACHING DESIGN OF *PURPLE WISTERIA WATERFALL*

According to Bloom's taxonomy of educational objectives and combining with China's teaching reality, new curriculum divides curriculum (learning and teaching) objectives into three dimensions: Knowledge and skills, processes and methods, emotional attitudes and values. Three-dimensional teaching objectives are not three goals, but three aspects of an issue. It embodies the basic concept of the new curriculum, the basic approach of quality education in the curriculum training and the requirements of full and harmonious development of students, personality development and the lifelong development.

The case study is about the article *Purple Wisteria Waterfall* in the *Chinese* textbook of Grade 7 Unit 4. According to Bloom's taxonomy of educational objectives and China's actual teaching situation, the author focuses on the according to the new curriculum objective classification standards to design the lesson from learners' acquisition of knowledge and skills, processes and methods, emotions, attitudes and values so that students can obtain the core knowledge of purple wisteria waterfall and the basic knowledge of the subject of Chinese in the learning process, develop their abilities to acquire, collect, process, apply knowledge, and allow students to learn the rhetorical devices such as metaphor

and personification and in the teaching process guide them to conduct interactive learning, immersive learning and cultivate their independent learning, cooperative learning and inquiry learning ability; in the process of teaching and learning, develop their spirit of loving life, being tolerance, kindness, realistic, innovative and responsible and put the value of life in the classroom teaching.

Before the class, turn on the recording system of the future classroom so that the teacher can watch the video afterwards to learn the advantages and disadvantages of their lesson and help their self-development.

Design Intention: When leading in to the new lesson, through creating questions for the students we introduce students to the familiar scene. Let the students to mobilize some of the memory on flowers and language of flowers, and then show Zong Pu's purple wisteria to lead in to the lesson. Through free combination of tables and chairs, we can achieve better interaction between people and the environment which will help the students construct their own knowledge; use whiteboard to present the PPT content; use writing tools for panel display, writing and outline. Achieve effective interaction between people and technology. Multi-screens display teaching content, making the teaching content more structured and systematic and so that students can better understand the teaching content.

Table 1
Case Study Phase 1: Lead in

Teaching Process	Design of teaching activities		Interactive teaching design
	Teacher's activity	Students' activity	
Lead in-1	<p>Teacher asks questions: fragrant flowers adorn our colorful life, so people take them as symbols to express feelings and pass our mind. This is the origin of the language of flowers. Do you know what the language of some flowers? Such as roses, carnations?</p> <p>Continue to lead in to the subject, show lush purple wisteria flowers, and mobilize students' emotions and imagination. Teacher guides students and asks the question: "Do you know what the language of the flower purple wisteria? Let's appreciate her mind of the language of purple wisteria under the guidance of Zong Pu. Let's enter today's lesson, <i>Purple Wisteria Waterfall</i>."</p>	<p>Students think about the question. To stimulate students' memory and imagination. When students are thinking of the language of flowers, show the flowers and their languages hidden on the white screen.</p>	<p>16 desks and chairs can move freely. Students are divided into four four-member groups. After free discussion, each student representative goes to their own screen to bring up the online flower pictures and write the corresponding language of the flower on the whiteboard. Teacher can make comments on the different student screens and then return to the main screen of the teacher and use the main screen to introduce to the content of the new lesson.</p>
Lead-in 2	<p>Lead in to the new lesson, present the content to students, show the lesson title, introduce Zong Pu, and describe Zong Pu's suffering during the Cultural Revolution and the story of her brother's illness. Provide students with examples of using things to express feeling such as Daiyu holding a funeral for flowers, and play the video.</p>	<p>Students may include examples of using things to express feeling from their knowledge base.</p>	<p>Link the student screen to the main screen; use one screen to show the picture of Zong Pu and the introduction of her; The next screen shows Zong Pu family experiences during the Cultural Revolution. The next screen shows the examples of using things to express feeling. The few remaining screens are left for students themselves to give examples.</p>

Table 2
Case Study Phase 2: The Overall Perception

Teaching process	Design of teaching activities		Interactive teaching design
	Teacher's activity	Students' activity	
Overall Perception	<p>Use the recording to read the text aloud. Use task-driven method. Ask students to listen to the recording with questions.</p> <p>1) Master the pronunciation of the following words: 迸溅 忍俊不禁 仙露琼浆 盘虬卧龙.</p> <p>2) Learn to read: in addition to more keywords, mark difficult words and sentences.</p> <p>3) Thinking: Listen to and read the text, tease out the structure of the article: which paragraphs are about flower appreciation; which paragraphs are about flower loving; which paragraphs are about flower thoughts. Provide ABCD four kinds of division options for students to choose.</p> <p>4) Ask students to mark out their understanding of the article in the terminals and press the answer function key to answer questions.</p>	<p>Students can learn pronunciation of some key words in the handheld terminals, and after listening to the article, they can divide the article into several parts and submit it online.</p>	<p>Set an interactive session with prize to answer questions. 16 students freely form four groups of four, and then through the responder set at the terminal and the whiteboard sort article paragraphs out and answer the question. The first two groups send a person to answer the teacher's two whiteboards to explain the division and the reasons.</p>

Design Intention: By setting this kind of question-answer activities for students, we encourage students to positively think, construct their own understanding of the different parts of the article. Through group consultations, we increased their teamwork ability. Finally, the

interaction between people and technology and the use of the responder allows students to analyze paragraphs and train the students' expressing skills. Through interaction between people and technology in the future classroom environment, we cultivate students' self-learning ability.

Table 3
Case Study Phase 3: Review and Appreciation

Teaching process	Design of teaching activities		Interactive teaching design
	Teacher's activity	Students' activity	
Review and Appreciation	<p>Teacher raises questions:</p> <p>1) From what aspects does the author describe the purple wisteria in bloom? (a) color: find the corresponding sentences in the text; (b) shape: find the corresponding sentences in the text; (c) status: find the corresponding sentences in the text. Next, let's invite some students to draw a picture of purple wisteria waterfall.</p> <p>2) Based on your drawing, mark out the rhetorical devices used in the article.</p> <p>3) Teacher raises a question: "When facing the blooming of purple wisteria, the author is inspired and thinks back and forward and perceives profound philosophy of life. Such an approach is called "using things to express feeling". Can you give some examples in your life?" The teacher can start a discussion and first give some vivid examples.</p>	<p>Students can automatically form study groups and use the terminal whiteboard, from color, shape and status to draw a picture. Train students' collaborative learning ability.</p> <p>Appreciate the beautiful sentences. Based on the drawing, mark out the ontology and the vehicle and keywords.</p>	<p>Each group of four study groups sends a representative to use the electronic screen and use the drawing tool to draw a picture. In the options of the drawing brush, students can use different lines and colors. Students can infinitely extend the whiteboard. The drawing is not restricted by the screen.</p> <p>When showing sentences of personification metaphor, the teacher can use the highlighting function of the whiteboard, circle the ontologies and the vehicles and metaphors, making the screen only highlight the keywords.</p>

Design Intention: To stimulate the creativity of students and allow students to describe the image of purple wisteria. We can also show the group work. The teacher can also make comments. Through the cover function of the whiteboard, we allow students to visually see what the elements of metaphors are after their thinking. For Junior 1 student, it is easier to understand. Group discussion is a good teacher-student interaction.

teaching methods, effective classroom organization, and reasonable arrangement of classroom content and resources and teacher-student interaction. Only efficient integration of the various functional features of future classroom can we explore effective interactive teaching in the future classroom environment.

5. TEACHING REFLECTION

"All language of the scenery is the language of feeling." Although the article *Purple Wisteria Waterfall* is mainly about purple wisteria, but behind the works it contains the author's life experiences, the family disaster during the Cultural Revolution and the worries when her brother was sick. How to make students understand the author's feeling by reading the article, how to get students to understand the approach of using things to express feeling, metaphor and other rhetorical devices are considered to be the difficult parts of the lesson. The above case study applies the design concept of interactive teaching in the future classroom; through the creation of teaching activities, it allows students to immerse themselves in the teaching environment and actively construct knowledge; through group learning, it develops students' collaborative ability. It achieves the intention to design the lesson from three aspects: the process and methods and emotions, attitudes and values, making students have a profound understanding of the difficult text. However, we need to note that although the future classroom is a more advanced classroom environment, yet we should not be blind to pursue it. It requires a combination of various factors, including rational teaching design, appropriate

REFERENCES

- Chen, W. D. (2011). The future classroom—highly interactive learning space. *China Educational Technology*, (08), 6-13.
- Chen, W. D., Ye, X. D., & Zhang, J. P. (2011). Study the interactive forms and characteristics of future classroom. *e-Education Research*, (08), 91-97.
- Chen, W. D., Ye, X. D., & Xu, Y. F. (2012). Future classroom: Wise learning environments. *Journal of Distance Education*, (05), 42-49.
- Feng, H. (2014). Research on the high school English teaching strategies based on interactive electronic whiteboard. *Chinese Education Information*, 20, 28-29, 66.
- Lau, P. N. K., Singh, P., & Hwa, T. Y. (2009). Constructing mathematics in an interactive classroom context. *Educational Studies in Mathematics*, 72(3), 307-324.
- Silverthorn, D. U. (2006). Teaching and learning in the interactive classroom. *Advances in Physiology Education*, 30(4), 135-140.
- Sun, W., Liu, X. M., & Guan, Y. B. (2010). Interactive feedback classroom based on interactive electronic whiteboard – Take junior high school mathematics classroom as an example. *Chinese Education Informationization*, 18, 35-38.
- Wu, Q. J., Zheng, Y. X., Cao, F. R., & Liu, W. Q. (2012). Case study of the application of double interactive electronic screens – Take the teaching design of *winter in Jinan* as an example. *Chinese Education Informationization*, 22, 34-38.