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STUDY AND DEVELOPMENT OF SIMULATION TEACHING PLATFORM FOR DEAF/HARD-OF-HEARING STUDENTS

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STUDY AND DEVELOPMENT OF SIMULATION TEACHING PLATFORM FOR DEAF/HARD OF HEARING STUDENTS

PRESENTER: YAO DENGFENG

>> Hello. I'd like to introduce our facilitator today. We have Dengfeng Yao. He will be presenting from Beijing. Beijing University. I want to let you know that if you have -- turning your telephone and pager to silent. And we also have a translators that will be speaking in the background that will be translating for other members of the audience today. We have roughly 30 minutes for the presentation. We would appreciate if you held your questions for the end. We're going to have a Q and A session. We would appreciate it if you filled out the evaluation and had a specific event number T11D.

>> I'm not actually Dengfeng Yao. He is absent and I will be speaking on his behalf. The topic we're going to talk is study and development of simulation teaching platform for deaf/hard-of-hearing students. He is a teacher of the special education college of Beijing University. This is a picture of the staff teaching Beijing University. Beijing University including Dengfeng Yao and several of his students. This is written by teacher Dengfeng Yao who is hard-of-hearing teacher at the Beijing University as well as Han Yumin, a professor of the university. And one who is

here. He is also the writer of this thesis. Now first we're going to have a talk about our goal in the education. We're trying to develop a efficient way to teaching language to the hard-of-hearing students. We're trying to get over the barriers caused by the deficit in hearing to teach knowledge in the most effective way. Why we want to do that? Is because hard-of-hearing students are fully prepared for the modern age. They are unfamiliar with technologies and as general program language. Also the levels of students who are not even in China which means some students were prepared for that and others don't know what computer is. The -- can no longer satisfy the need of this modern age. We cannot use the conventional teaching methods to teach our students. We found that computer interface image has simulation has some characters that mix well with those students. Now we talk about some background. First we talk about the internal factors that we face, mainly about students. First the hearing impaired high school graduate level students, basically has knowledge of the English in China. A student -- they are logical and abstract thinking abilities are not as good as normal student. As well they have attitude of cowering to computer programming. That as a result considerable number of students do not have a control of the high level of language that our colleges seek. The external factors, as for China who has a short history in teaching our students of the program languages, so far there's only two specialty colleges that have such colleges like sign language. Due to the environment we found such is no longer appropriate. We need more college to involve in those educations. The problem exists in teaching we have is -- we have not given enough considerations to the characters of deaf and hard-of-hearing students. Now, before we talk about our simulation causes the first thing is that our -- we have already tried the following. First, we have tried improving the entrance exams which means we set an entrance exam and classified our students according to their scores in entrance exam. Also we using multimedia technology that is computers, PC, improving teaching models and methods by the teaching contact, scattering different points and reducing rank giving more examples. As a result of those tryings we find this has some problems that exist in teaching, however only multimedia technology not enough for teaching competent language to the student that are deaf or hard-of-hearing. As we introduce the simulation technologies which we're going to show you today. Now, what is simulation technologies? Simulation normally used for industrial design and no precedent for college and universities using it in the computer program language teaching for the hearing impaired students. The simulation technology can be logical relation of computer language into the animation process. How to use the simulation technology? Basically we are finding our -- sorry. It has -- the fierce image simulations from point of view of the conversation which means we try to -- hard to hear you. Try to compose that by vision. Also meet the needs of the teacher of hearing impaired students. Now this is the photograph of this program which is called simulation program -- education program for the deaf. To achieve this goal we use a new method in teaching namely crossing [inaudible comment] computer-based teaching language is teaching platform with the use of physical and psychological barriers, conversation and skills, training methods the hearing-impaired student have been taught more than technology. Teachers use a pencil to solve the problem of the hearing-impaired student and lead to hearing-impaired student into a new field of study which means we use the technology to set up a platform for the beginner of modern language. Now we're going to show you -- this is the platform we use as a simulation. Here we have flowchart and some manual written code. Basically we have those in all language. This is the interface we have. Based on the interface we have simulation on the screen. Which means if you write program you can really see the result of those. See here, this is a little car and see forward or can right or left. Do the exact as you do. It can also avoid obstacles and do all the steps. Actually has

a robot that is working, can also show the students the programming the result of the programming. I will do that as I just explained with first translation to C code to simulations, the student can also see the result of C code that is the action of the robot and we have a flowchart editing and data structure. We have some design of simulations. We designed a language into software. And from the way that the language code would design a set of flowcharts of the data structure which is called C flow object. We divide flowchart into flee models. The functional model, the judgment and the loop model. We also introduce the concept of delay. Also drawing the scan -- this is the car we just mentioned. As you can see there were some delays here. Measurement, measures. We use the computer language learning system to teach in class with constructive teaching method. We use the robot simulation laboratory in the experiment. How to use the platform. First we organize teacher unit in a topic way. Second we're combine some experience of the national robot match consisting of reaction of hearing-impaired students into selective topics. We choose some simple and practical examples, robot, how the robot find the track, we circle grounds avoiding the obstacles and so on. So this examples we transform data structure and pointers into features of the entity. It has overall review and understanding of the knowledge the students learn before. Self-management and self-development ability and problem solving skills. Benefit. First by using the simulations we improve the quality of teaching and learning, the simulation platform meets well with the physical characters of hearing impaired student, achieve the fair higher education for the hearing impaired student. We also improve the quality of teaching and learning in the computer language teaching adding computer stimulation student can get best condition for learning because of the stimulation ability is visual and interaction features as the light, shape, color and moving of a computer simulation directly stimulates the visual of the student it shows good results and the strengthening of the overall effect and is deductive to the best teaching effect. The quality of teaching is improved. Enables hearing impaired students with education and more with a stronger visual characteristics and improving the quality of teaching. The simulation platform can create colorful, interactive, timely feedback, learning environment for the hearing impaired students. Hearing impaired student can also use to stimulate real situations and build self-discipline inside and outside a subject to explore the subject knowledge, application and the exchange. The simulation provided by the diversity and the comprehensive external stimulation is effective in mobilizing the signages and multisensory of students without hearing. So the hearing impaired student can explore and complete the whole process of learning in accordance with their choice of cognitive basis of study. According to the intelligence and diversity and establishment of a new -- curricula system and exploring of a new teaching method can make the exchange of information and communication becomes relatively easier for the hearing impaired student while they are studying adding the simulation technology into the teaching of hearing impaired student with the use of modern technology and teaching method the hearing impaired student can enjoy the normal teaching quality of the normal student. It's important for achieving the fair, higher education. Also we face some problems in our experiment. First, the reform of the shortage of simulation technology. For now we have only a few kind of simulation technologies. Also we have faced funding constraints. As a summary, simulation platform is designed to serve practical problems in teaching hearing impaired students. Also can be used to fit for the hearing student. Teaching stimulation platform is an end open simulation environment. And basically give you thanks because I'm not the real presenter. I will give it to the gentleman over there and he will be happy to ANSI of your questions. If you have any questions? Okay.

>> Well, actually I don't get the picture of this simulation program. So can you show us how this simulation program works in motion? I mean the simulation platform program in general?

>> You mean this one?

>> I don't get how it works. I don't get the picture of this whole program so can you show us how it operates in motion?

>> Create as flowchart and based on flowchart create the code, C code.

>> What I'm saying it's a -- what I'm asking is it's an architecture of the platform program thing but what I want to know about is how it operates in -- actually in class and -- if it's a --

>> Actually want to know how this is related to the teaching process, right? We don't have a demo.

>> Demonstration thing.

>> We don't have the demo of the program. Just have --

>> I don't quite understand what you presented. So I just want to have a look.

>> What was the question again? You want to know how to use this thing?

>> Well, actually, I don't quite understand.

>> Understand?

>> The whole thing. Maybe it's my problem. If there's anything to show us then it's fine. Thank you anyway.

>> Maybe I can ask a clarifying question that might help you, as well. If my understanding is correct, you have built a simulation environment where the students can go in and enter code or pseudocode to control, to practice writing computer codes. That is --

>> Yes.

>> Okay.

>> The first programs in C code and try some of the coding to these -- code by the robot and show how the code works with the robot.

>> So the students can enter the code and see the result of that code immediately?

>> Yes.

>> Thank you.

>> Any other question? Thank you.