Life is the source of teaching: One action research for the information technology education in middle-school

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ABSTRACT

"Life is the source of teaching". It is the first class should be concerned in information technology teaching that the learning content should be related with life. To do this, we should take students as learning subject, and pay more attention to students' experience and participation to cultivating their practical problem-solving abilities. Based on methods of action research, we discussed how to make information technology class as a real life in underdeveloped areas, so as to seek a further reform of information technology curriculum and provide practical experience for them.

Key words: Information fusion; granular computing; intelligent transportation
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INTRODUCTION

Life is the source of teaching. Only returning to life and rooting in the soil of life, instruction can make the teaching activities realize the value of life, and to find the source and growing point of life[1]Mr Tao Xingzhi, an earlier famous educator in China, advanced an important thought that "life as education", which means that only through real life, education can be effective.[2] Because of the rapid development of information technology, the IT teaching in Middle-school even need return to life, need to strengthen the connection of the curriculum content with the student's life and the development of science, and pay more attention to the learning interests of them, to let them gain some life experience from learning and a better life in the future [3] On the other hand, especially in the area which is relatively backward in economy and culture, the IT teaching must avoid formalism, and must be established on the base of life.

For the IT teaching as life, what is the first class should be concerned is that the learning content should be related with life. To do this, we should take students as the main body of learning, and pay more attention to their experience, and participation to cultivate their practical problem-solving abilities. Compared with the curriculum before, we pay more attention to the emotional attitudes and value cultivation in the new basic education reformation. The thought "life as education" should run through the design process of teaching activities. We are mainly through the new standards of attitudes to realize the values [4] [5]

The new curriculum reformation are beginning to pilot in some provinces or cities. There are so many new textbooks based on the new written requests to be pressed by different publishing houses from different fields. The new materials greatly increase proportion of the contact between social life and the contents of IT instruction; and these materials have started to concern the promotion [6].

Due to various reasons, however, there are many problems in current middle-school IT courses teaching. It couldn't be as a real life, especially in the areas which relatively backward of economy and culture. In these areas, the

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middle-school IT teaching is only pure skill training, which is so far from "life as education".

EXPERIMENTAL SECTION

1. RESEARCH OVERVIEW

In this research, the experimental classes are in a senior school which located in a county on the east of Guangdong province. It is far away from its provincial capital. It is relatively backward of economy and culture, and little information communication with other cities in this province [7].

As an IT teacher in this school, the author found that, when students begin their first IT course learning, they usually are in different origin. As shown in Fig.1, based on the investigation in 2011, there are 67% students to be on the zero level (which lever with no IT learning background), 23% to be on Primary school starting point (with no IT learning background, but can use some common and easy software, such as QQ, online games, and so on), 10% to be on Junior high starting level (which is thought to be a good level for senior school learning). In 2012, the zero level percent is 58%, the Primary school starting point is higher than yesteryear, 31%, and junior high level is 11%. It was best in 2013.But the zero level students are still the great majority. The ratio of three levels is respectively 45%, 38%, 17%.
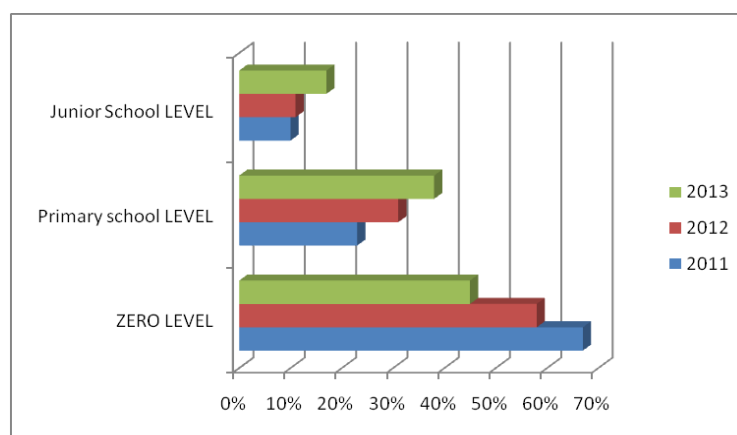

Fig.1. THE RATIO OF THREE LEVELS

In actual practice, we firstly tried to bring many hot IT issues to students to broaden their horizons. It was supposed that they would have more access to new knowledge, or they would be more interested in IT learning. But after a period of study, their impression of IT is still former, or even more fear than before. They show less enthusiasm in IT course learning. We did a simple survey. The result showed that more than 60% of them love surfing in the web but not the course itself. They considered the course is too hard and too mysterious, and they can't accept it. This raises our thinking: is the newest thing best to students? In another words, must it be suitable for them that have been proved to be as life in other areas? Of course the answer is negative, and we believe very much that, most of the newest technology learning may be a "knowledge burden" for local middle school students. To solve this problem, we must try to build a real suitable content for their IT learning.

In this research, we divided two groups which were designed different methods to teach. In the control group, We arrange the following ways to construct the life of the information technology in the classroom: with video, animation, and story-telling form the creation of the teaching situation to student life to arouse the students' interest in learning; arrange suitable levels of cognitive development of students learning task to keep learning motivation necessary to learn; and results for students' learning process and task completion development of evaluation is to replace the traditional evaluation to promote students' learning self-efficacy, and further strengthen the students' motivation and so on. In the experimental group, we mainly designed the "as life" IT class from the macroscopic and microscopic dimensions.

2. RESEARCH DESIGN AND IMPLEMENTATION

Influence factors of information technology classroom life is various, including the student the information real cognitive experience is their assessment of classroom content is an important standard of life, so the students' cognitive experience into the building successful important factors affecting the life of classroom. Therefore we defined the specific content of the "life of the information technology classroom" by another way. We think, to build a life of the information technology in the classroom, teachers should as far as possible according to the students' problem solving the general mode of thinking and existing skills to design the teaching process in the choice of

learning subject.

On this basis, the information activities as the main line, through the student's practical activities, enable students to understand the life and enhance the ability of social cultural knowledge, understanding, experience and feeling, form and then get distillation of emotion and consciousness. "Paying attention to this theme of life" should be to meet the student's actual life forms, avoid the big, empty, pan problem.

So in the experimental group, we mainly designed the "as life" IT class from the macroscopic and microscopic dimensions. Next we will introduce the two dimensions in detail.

3. TEACHING DESIGN OF MACRO AND IMPLEMENTATION

In this study, because of the differences of students' beginning level differences, we choose the grouping method that of complementation of superiority. [5]That's to say, students choose their partners by volunteering. There is an original principle that the one who can use computer easily must help the fresh. There will be 2-3 people in each group.

Teaching process is divided into three stages:

Firstly, we designed learning activities for the zero level. Students were under the guidance of the cognitive psychology of "hands-on learning" and "observational learning" teaching strategy, to be more familiar with information technology learning and gradually like it. In the form" observation" and "hands-on learning", they can learn to obtain, analyze, evaluate and comprehensively utilize information. It is also necessary for their information literacy and information skills training.

Secondly, when zero level to elementary school students' basic level, scaffolding instruction strategy is used teaching, which is under the guidance of recent development region theory. On the one hand, we created some live context according to the characteristics of students' cognition, to simulate their interest in IT course learning. On the other hand, we build the most recent development region in the process of teaching for students, and according to the specific situation, we divided the teaching goals into some small simple target, and give them appropriate supplementary related content based on the actual skills of students. It can stimulate students' self-efficacy, and promote their learning motivation.

At last, we mainly choose some comprehensive activities. Learners are all looked as the main body of learning. And task-driving and inquiry-based learning strategies are chosen to assist learning. All the teaching activities were leaded by students. The task of teacher is only information center providing for students to gain knowledge, and information skills training by students' active construction. In the process of learning, students receive not the basic knowledge from teachers but their comprehensive information literacy.

4. MICRO TEACHING PROCESS DESIGN AND IMPLEMENTATION

In this experiment research, micro teaching process contains 4 contents. They are teaching materials selection, students' life, evaluation and feedback training.

1) On Teaching Materials Selection

Compared with the original teaching materials selection, we pay more attention to students' learning problems in life. Sometimes we start with students' thinking mode, and sometimes with teachers' practical experience themselves, and then analysis problems, help them solve problems in their interested way. We encourage them to choose suitable ways to solve problems. Therefore technical means paying more attention to the cultivation of students' ability to solve problems.

2) On Students' Life

Constructing the life class means not only to create life situation, but also to solve practical problems in life, to cultivate the ability to solve problems commonly, and to pass the emotional life. In the experiment we especially designed an emotional sublimation by teachers' own emotional experience, values and outlooks on life, to affect students' behavior directly.

3) Evaluation

Evaluation of student's study is mainly through the easy growth records of the student, including their lessons, self-evaluations, work condition and every stage of the works, and the evaluation from his classmates and teachers, etc. Students' learning materials in the learning process will also add to grow at any time in the record of growth record.

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4) Feedback Training

Maybe there are a few students can't adapt to new ways of learning in the classroom. Consciously to add some feedback training, such as make students to ask questions consciously and to express the understanding, strengthen exchanges and cooperation between the team and the exchange form learning reflection, etc.

Anyhow, because of its no pre-designed characters, the plan of teaching process has been more detailed than traditional education, and the final prior arrangements can only note real classroom teaching records.

RESULTS AND DISCUSSION

1.   DESIGN IDEAS CONTRAST

As Fig.2, in the control group, every class is from situation creation to teaching evaluation. The teaching process is linear. And there is little communication between teacher and students. There are also more new IT elements to be use in the class, but it is unidirectional as the traditional class.
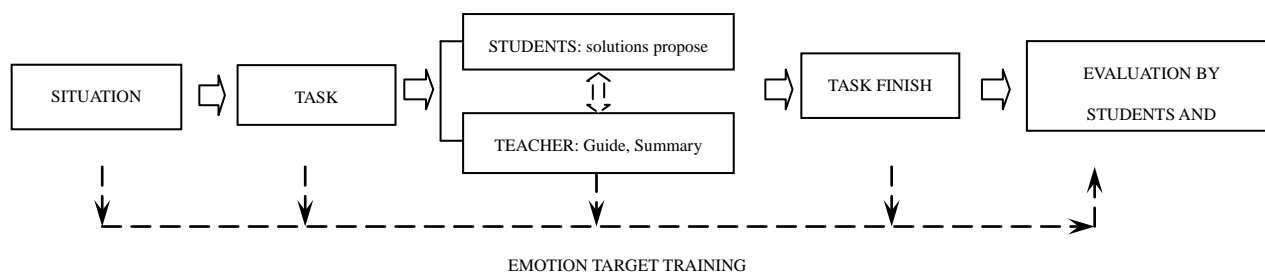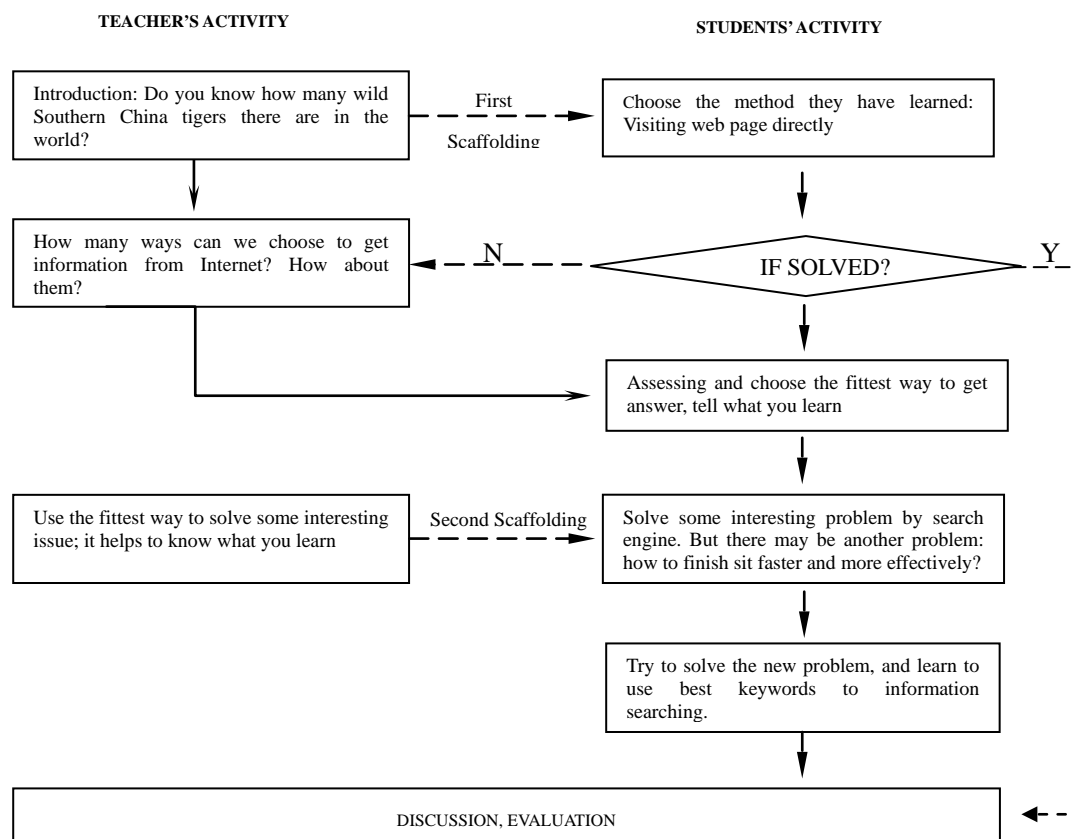

Fig.2. Teaching Design of Control Group

Fig.3. Teaching and Learning Process of Experimental Group

In the experimental group, we choose a different method which based on Vygoskey's Scaffolding Theory. As Fig.3, all the new knowledge and technology is given by scaffolding method. Students can get their target by many small steps. There are also more interaction between teacher and students. In this way, learners would feel more

comfortable when they are learning. It is really very different from the traditional liner process.

DISCUSSION

In the control group, based on the present situation of students starting level, has to take into account the packet to the complementary advantages of the group cooperative learning, however, the starting point of the students uneven and zero students accounted for the majority, information technology, students can 't keep up with the teacher's teaching schedule, often appears in practice all good students, from basic theory to improve the part became teachers "monodrama" such an embarrassing situation, "let the students from passive learning into active learning intention" not reflected well in the teaching, finally makes the learning enthusiasm of students and teachers with the progress of the gap gradually reduce.

Secondly, knowledge is the students' self-construction, especially the emotional goals of this class of tacit knowledge. Personal experience, cognitive structure and thinking mode are different, emotional responses to similar content will be quite different, want to will run through the influence on teaching to students to influence character by environment settings in advance of emotional target, the result will inevitably because of learning objects have different differences, to realize the life of students in the process of teaching, emotion is a bit too, at the same time as the gauge evaluation of emotional target is difficult to establish, affective objectives are always difficult to reflect.

In the control group, the design of classroom teaching is the default content, while in the process of teaching also intends to focus on students' learning autonomy, but the default itself indicates that has arranged for students learning contents and learning methods, give students free space will be relatively small, limited learning ability of students, for students for, even deliberately plan to let the content of life, "the connotation of the life oriented" always is the teacher only one party is willing conceived castles in the air.

Although it is the same to teach students "information acquisition strategies and skills", and the teaching content of macro may still be teacher prior arrangement, the experimental group's solution for the class is the actual existence of the students' questions. Teachers pay more attention to the practical difficulties will be met in the process of learning of students, and in the light of these difficult to guide students to find out the corresponding measures.

We should use multiple evaluation methods to the evaluation of the effectiveness of student learning as far as possible. On the one hand, continue to use the method of objective evaluation, but avoid using only a simple fraction, can improve the students' study enthusiasm to a certain extent, and students will not far from the traditional evaluation system is not known what course to take familiar; on the other hand, for the evaluation of emotion goal is mainly through the subjective reflection of students for, in order to improve the students' sense of self efficacy, but also can improve the self-efficacy of students, improve student learning internal driving force, maintain helps students' intrinsic motivation.

CONCLUSION

In this research, we have discussed several issues:
1) To realize the thought "life as education", the most important thing is not the advanced technology, or not how much the discipline information integration in class, but how much it is returning to normal teaching, to generate the way for students' practical problems.   In emergent teaching for students, teachers need to provide more continued concern of their emotions.

2) The information technology teaching as life, the key point is enhancing learners' emotion experience. Therefore we should be more close to the student life inner emotional experience in the classroom, to encourage students actively participate in learning process, not just on the learning content and the life relation this explicit factors.

3) "On the Life of students", this theme needs to be in the whole process of realizing real emotion communication. This requires teachers to understand the student's habit of thinking, and try to design their instruction.

4) To evaluate the effect of the students, try to use multi kind of evaluations. Both quantitative and qualitative evaluations should be used. And the evaluation criterion for emotional goal can be through the students' subjective reflection. It can not only improve their self-efficacy, but also can improve their learning motivation, and to help them keep their inner motivation of learning.

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