The evaluation approaches on the thinking abilities in primary school through thinking tools

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Abstract: This paper reports the evaluation approaches of thinking abilities of pupils from three primary school in Guangzhou. It is expected to show how to record the thinking process of students with thinking tool. We find that the thinking tools promote the diverse evaluations, provide opportunities and platforms for expression, and get feedbacks, valuable evidences for evaluation.
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Keywords: Evaluation approaches, Thinking tools, Thinking abilities

1. INTRODUCTION

To comply with the program of curricula reform for basic education (2001), it is emphasized that the evaluation of pupil should not only focus on the score on tests but also what pupils have done in the process to develop diverse abilities. In the last decades, there are lots of difficulties in evaluation that are standard answers as evaluation objects, tests as evaluation approaches, test scores as evaluation result, teachers as evaluation subjective etc. In addition, pupils are in a condition of learning how to think. The term "thinking" includes categorize, solve, predict, illustrate, imagine, compare, apply, evaluate, and so on. It is crucial for them to foster the abilities in primary school. However, it is not visual because thinking is a mental activity and thinking abilities are that people are able to form the opinions by their mind. In other word, how to assess thinking abilities could be a problem.

2. METHOD

2.1 The aim and of the study

According to the difficulties and problems, this paper intended not only to observe the development of students' thinking and behavior in class, but also help teachers gather the visual data of students' thinking abilities to achieve the evaluation.

2.2 The participants and subject

7 teachers and 560 students participated in the research from three primary schools in Guangzhou. Every teacher took responsible of two classes and the pupils ranged in age from 11-12.The subject we chosen included mathematics, English, Chinese and comprehensive practice courses such as comparing the food between China and Japan to understand the reasons why they are different.

2.3 The thinking tools and process

In order to reach the aim, thinking tools may be introduced which make thinking process more visualize and be used to the evaluations. Here are the four thinking tools we usually used.

2.3.1 Image map

As a brainstorming tool, image map enable to make pupils' thinking visible. Image maps can be applied in general note-taking when pupils read a passage and record detailed thoughts optionally.

2.3.2 The Venn diagram

The Venn diagram, which was designed by John Venn, is used as a learning tool in comparing and contrasting. With the Venn diagram, pupils compare the similar learning objects and teachers compare the differences between two classes and assess what they have learned.

2.3.3 Fish bone diagram

The fish bone diagram is a brainstorming tool for cause and effect relationship. It helps to visually display many potential causes for a specific effect.

2.3.4 PMI chart

PMI is a table form that stands for Plus, Minus and Interest. Students could write down reflective thinking after class. It encourages students to consider what they have learned, what difficulty they have, what they enjoyed and would like to study later in learning activities. In addition, it can be applied to assess their peer learning that assist teacher gather more data about every students.

3. ANALYSIS AND FINDING

Thinking tools facilitates teachers to evaluate more easily. According to the products (picture1-4) from pupils as below, we find that there are four findings about applying thinking tools as evaluation approaches.

3.1 Thinking tools are conducive to the diversification of evaluation.

Making products by thinking tool conducting provide teachers with feedback of how they

consider and take action in improvement for the next step. At the same time, peer evaluations also help pupils understand their advantages as well as the gap between the classmates which encourage themselves to take more responsibilities for learning and make great effort.

3.2 Thinking tools help students realize their advantages and disadvantages for improvement.

It is valuable to make self-evaluation and realize their advantages and disadvantages. In other words, it help students conducting self-evaluation, then being self-monitoring, make sure whether they have achieved the expected learning tasks or not.

3.3 Thinking tools provide opportunities and platforms for expression.

In the past, students are always passive. They are only judged and gave evaluation results by teachers or administrators according to the common standards. However, the evaluation methods rarely consider whether they are suitable for them. Now in PETA program, pupils could speak whatever they want and express ideas in the relaxed environment with teachers.

3.4 Thinking tools assist teachers to make judgment for students from different ways.

Using the thinking tool can not only reduce the arbitrariness of evaluation, but also improve the objectivity and impartiality of the evaluation. It makes contribution to facilitate teachers' self -evaluation for their teaching behavior and realize the strengths and weaknesses in the process of teaching, then to improve in the next round of instruction. Teachers also get feedbacks and important evidences to evaluate from thinking tools.

Pic 1 PMI chart   Pic 2 Fish bone diagram

Pic 3 Image map   Pic 4 The Venn diagram

4. Summary

In this study, the evaluations have been improved with thinking tools. Evaluation objects have been products besides the standard answers, evaluation approaches have been the presentations besides the tests, evaluation result have been the comprehensive scores besides test scores, evaluation subjective have been pupils besides teachers etc. In future, we will apply more thinking tools to continue this study to promote pupils' problem solving skill, creativity and learning skills.

Literature Reference

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