

# A study on network learning challenged traditional classroom instruction—Instruction with Interactive Whiteboard as an example

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*Abstract:* This study discusses self-learning network environment about aspects, benefits, sensations, and related researches. Emerging teaching technological facility “instruction with interactive whiteboard” is an experiment tool. This study implemented in traditional teaching and multimedia teaching is mainly aimed at the impact. In the digitization environment of the multimedia in the future, the teacher and student meet the example of studying trend.

*Key words:* network learning, Whiteboard,

## 1 Student's sensation of network self-learning environment

### 1.1 Network self-learning environment:

According to McGreal's research[13], an ideal network learning environment should possess five key elements[2] [3] [5] □ On-line curriculum, On-line test, Hypothesized classroom, Teaching managing and Learning tool .

### 1.2 Benefit of network self-learning environment:

To the network study's interactive way, [14] once pointed out three kind of basic states : Between learner and teaching material's interaction, between learner and learner's interaction, between learner and teaching's interaction[4] [8] [10].

### 1.3 Sensation of network self-learning environment:

This research used the reorganization from [1] “the network learning environment consciousness meter” to survey the elementary student's consciousness to the network learning environment, this meter contains five aspects

including the network resources[6] [7] [9], schoolmates interact, the performance states, the network function, the career development and so on.

## 2 Fraction addition concept Learning in Interactive multiple symbol Contextual learning

Symbol and characterization of mathematic are a humanity's important achievement. The symbol significance mainly has three views[10] [11] [15]:

1.The symbol is refers to humanity's mental system or a specific knowledge structure in the long-term memory area, under certain situations is called the concept[15].

2.The symbol is [referred to use the symbolism during modeling each kind of mental process. [12]

3.The symbol simultaneously has the above two characteristic significance.

In other words, the user may change in the writing or the numerical model digit, but will be

related the graph to correspond changes fast[13] [15]. Following chart 1, chart 2:

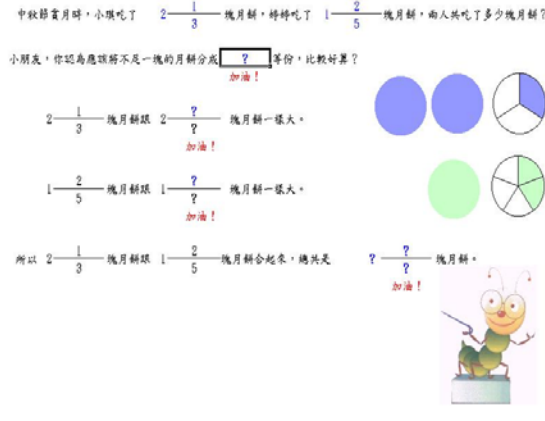


chart 1

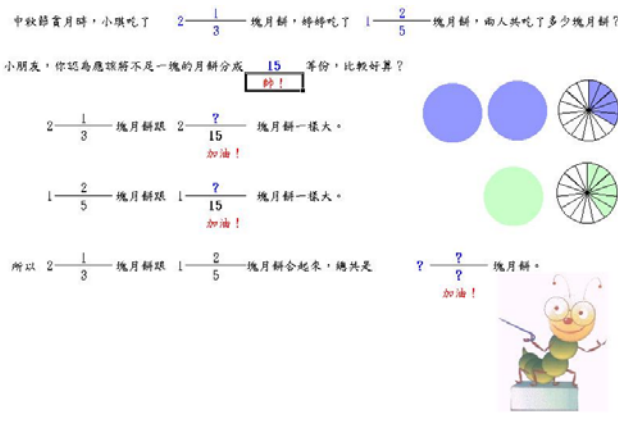


chart 2

The model 1 is to let the student in the unit fraction synthesis understand same denominator fraction adding together the concept. Because Excel itself has the formidable operational capability, may judge student's answer, and gives the feedbacks (like, Figure 4). After presenting a right topic, the student might change the topic voluntarily, the graph symbol and the value symbol along with its fast renewal. Regarding oneself topic inevitably, the student felt interesting. Then the student might in the short time practice many topics ( Figure 1).

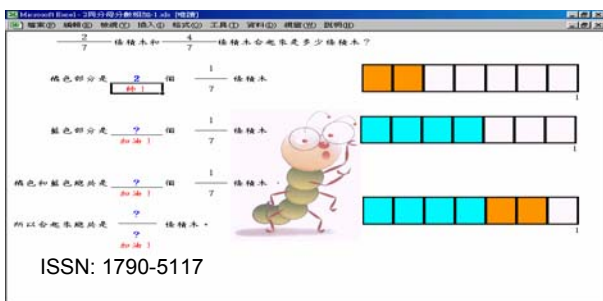


Figure 1

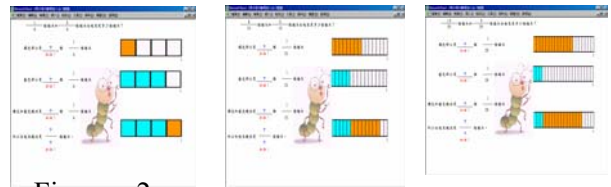


Figure 2

If the student encountered the difficulty in the formal operation establishment, he/she might also use the hyper link the function to return to the preceding station, then solve the problem after the unit score synthesis's method came back to process the form again the operation (Figure3, Figure 5).

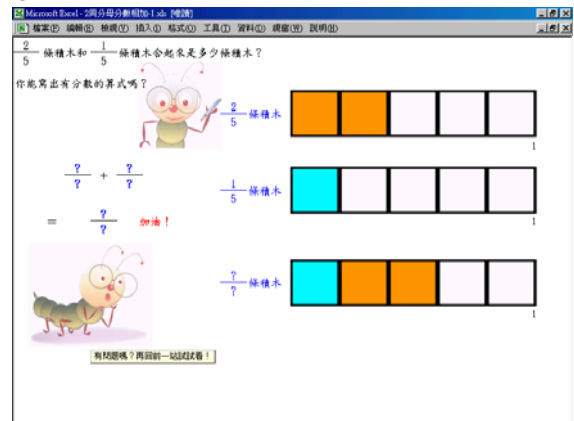


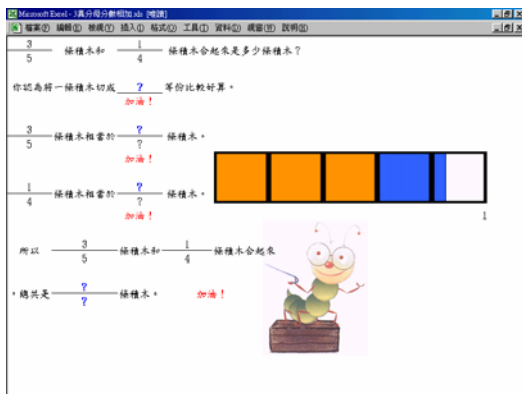
Figure3

Within guiding the student for the discrete magnitude form to study the fraction tolerantly the addition, the model 2 has the multi-secondary symbol, immediately feedback, the hyper link similarly, and is possible immediately to establish many topics of functions voluntarily as well as formal operation (Figure 5).

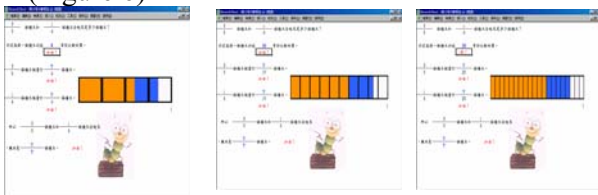


(Figure 5).

In model 3, the topic presents the student drafts from the graph symbol may discover that is unable immediately to use the unit fraction synthesis way to make two building block add together (Figure 8). Therefore, start one building block to cut again, he may attempt wrong cutting, until discovers and cuts numbers correctly (Figure 6).



(Figure 6)



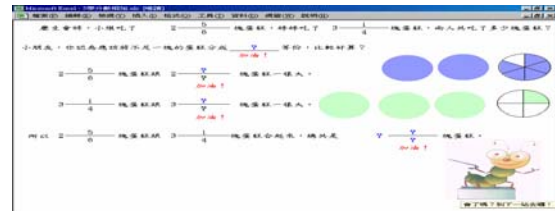
(Figure 7)

The model 4 still continued “cuts again”. The student can practice different denominator fraction adding together. (Figure 8).



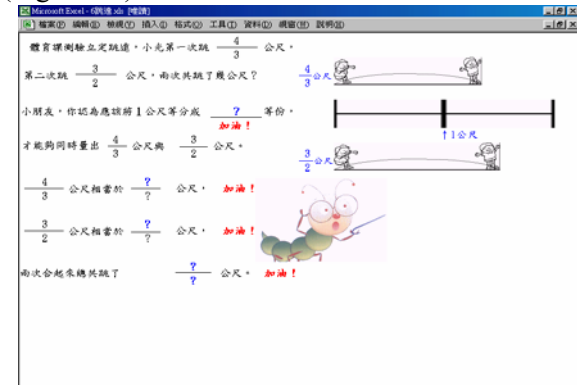
(Figure 8)

The model 5 takes the model 4 different denominator fraction adding together question as the foundations, joins the whole part to become different denominator mixed fraction adding together (Figure 9).



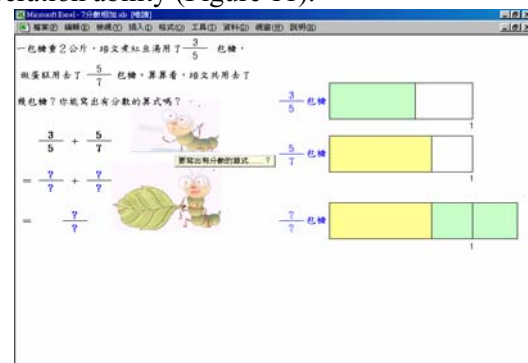
(Figure 9)

The model 6 surveys the distance situation, may divide the ruler for the student to survey willfully. (Figure 10).



(Figure 10)

The model 7 requests the student to use the formal operation directly and lets the student practice the similar question, establish its formal operation ability (Figure 11).



(Figure 11)

Coordinating with teaching auxiliary software, the student can achieve the bigger learning effect. Therefore, the researcher designs the necessary teaching flow is as follows[14]:

1. name of unit: fraction addition
2. goal of unit :
  - (1) Review the same denominator fraction synthesis question, and has the fraction formula record problem solving process.
  - (2) Solve the different denominator fraction synthesis problem, and has the fraction

mathematical formula record problem solving process.

(3) Solve the different denominator mixed fraction synthesis problem, and has the fraction formula record problem solving process.

(4) Solve the different denominator fraction synthesis problem, and has the fraction formula abstract record problem solving process.

3. Teaching material analysis :

(1) Teaching object: the fifth grade student

(2) Teaching time: 8 classes, altogether 320 minutes.

4. Teaching aid preparation[11] [16] :

(1) E-classroom (2) Teaching auxiliary software

(3) Teaching sample question book

5. Teaching flow :

(1)Move 1: By the unit fraction synthesis's way, solve the same denominator fraction synthesis problem, and has the fraction formula record problem solving process[17] [18]. (2)Move 2: In "the unit fraction instructed contents for sole thing" under the situation, solve the same denominator fraction synthesis problem, and use the mathematical formula record problem solving process.

Teaching time: 1 classes, 40 minutes. (3)Move 3: By "divides again" way, solve the different denominator fraction synthesis problem, and has the fraction formula record problem solving process[18] [19].

(7)Move 7: Can by the formal operation way, solve the different denominator fraction synthesis problem, and has the fraction formula record problem solving process.

Teaching time: 1 classes, 40 minutes.

### **3 The development of Interactive innovation educational model of fraction addition concept learning in multiple symbol contextual learning**

1. Cause the motive □ E pluralism of tool

2. E situation studies the concept of fraction

3. Initiate E environment to study the consciousness: Resource of the network, network function, the interdynamic of the same generation, media's phenotype attitude, studying oneself

4. Promote, demonstrate the interdynamic mechanism: The teacher coaches, promotes and assists students to familiar with the interdynamic mechanism of the electronic white board

5. The producing is developed: The teacher coaches students and issues thinking or view interdynamically, analyze and comment on

6. Cooperate in using: Students use the interdynamic function to achieve meaning to do in the test automatically

7. Comprehensive guidance : Teachers and students comment each other interdynamically, comment by oneself

8. Use independently: Teachers and students discuss and comment the ancient bronze mirror with feedbacking thinking

Finally, we have been discusses self-learning network environment about aspects, benefits, sensations, and related researches. Emerging teaching technological facility "instruction with interactive whiteboard" is an experiment tool. This study implemented in traditional teaching and multimedia teaching is mainly aimed at the impact. In the digitization environment of the multimedia in the future, the teacher and student meet the example of studying network learning and use the Whiteboard trend.

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