Advances in Educational Technology and Psychology (2025)
Clausius Scientific Press, Canada

DOI: 10.23977/aetp.2025.090417
ISSN 2371-9400 Vol. 9 Num. 4

Research on the Application of MI Theory to IT Education in Primary and Secondary Schools

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Keywords: Theory of Multiple Intelligences, Primary and secondary schools, IT education

Abstract: The application of the theory of multiple intelligences to the teaching of information technology in primary and secondary schools can create a new teaching thinking and form a new education system in information technology education and teaching, and the application of the theory of multiple intelligences in the classroom can make it more convenient for us to use different teaching methods for students with different intelligence differences, set up different gradient teaching tasks in the classroom, and enrich and develop the classroom teaching of information technology teaching in primary and secondary schools to a large extent, and improve the teaching effect and teaching quality. This paper mainly investigates the application of Multiple Intelligences (MI) theory in IT education in primary and secondary schools. It includes a survey of the current state of IT education in primary and secondary schools, an analysis of existing problems, and the rational application of MI theory to IT education based on these problems. The paper also proposes specific strategies and methods for applying MI theory to IT education.

1. Overview of MI Theory

The application of MI theory to IT education in primary and secondary schools can create a new teaching mindset and form a new educational system. By using different teaching methods for students with different intelligence differences and setting different levels of teaching tasks in the classroom, IT teaching can move away from the traditional model where the teacher operates and students follow. The application of MI theory allows teachers to study IT education from a multi-intelligence perspective, which will greatly enrich and develop IT classroom teaching in primary and secondary schools and improve teaching effectiveness and quality [1].

MI theory mainly includes: 1) Linguistic intelligence 2) Logical-mathematical intelligence 3) Spatial intelligence 4) Bodily-kinesthetic intelligence 5) Musical intelligence 6) Interpersonal intelligence 7) Intrapersonal intelligence 8) Naturalist intelligence. As shown in Figure 1:

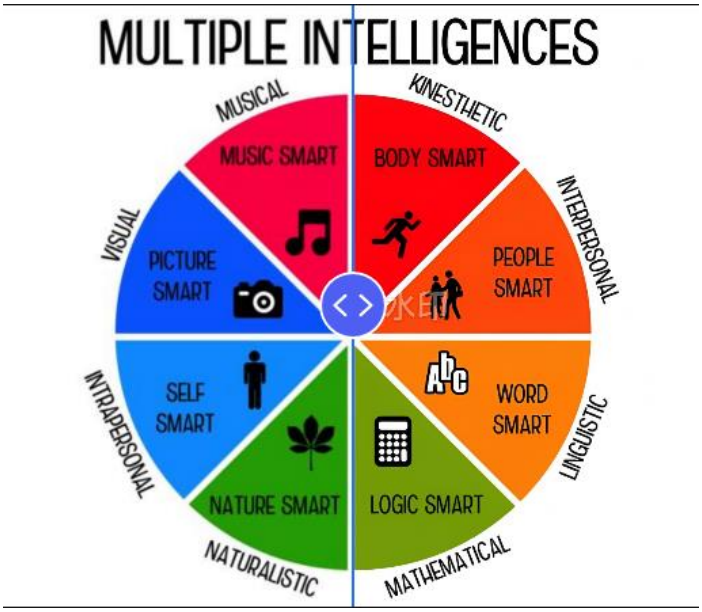

Figure 1: Theory of Multiple Intelligences.

The core views of MI theory are: 1) Each intelligence has its own characteristics and unique forms of expression 2) Most people possess a complete spectrum of intelligences 3) Multiple intelligences have their unique developmental sequences 4) They usually operate in complex ways 5) The intelligences of most people can be fully developed.

2. Analysis of the Current State of IT Education in Primary and Secondary Schools

Since the educational reform, IT education in primary and secondary schools has received much more attention and has been given more importance in many schools' curricula. Many primary and secondary schools now offer weekly IT courses and have prepared appropriate IT textbooks. However, there are still many problems, as follows:

2.1 Outdated Educational Ideas and Concepts

Although educational reform has achieved great success and quality education has been deeply rooted in people's hearts, the importance of IT has been greatly enhanced, and schools have increased their efforts in IT education. About 80% of primary and secondary schools in the country have opened IT courses. However, this level of attention is still not enough. Many schools still have the idea of "score supremacy," and many schools still use students' main subject scores and the school's enrollment rate as the standard to evaluate a teacher's teaching level [2]. Therefore, many teachers, students, and parents regard IT as a secondary course. When there is a conflict with the main subject, the IT course is always sacrificed. Moreover, in the teaching process, many teachers still use the lecture method, that is, teachers mainly lecture in the classroom, and students passively accept.

2.2 Outdated Teaching Models and Rigid Teaching Methods

Many IT teachers now rely on self-study to master some computer-related knowledge and then engage in IT course teaching. Such teachers generally lack teaching experience and advanced teaching concepts and methods. As a result, the entire classroom teaching model is rigid. Many teaching contents, strategies, methods, and steps, as well as students' classroom practice operations,

are all arranged by teachers in advance. Students are always in a passive state throughout the teaching process, making the classroom dull and uninteresting, and students lose interest in learning. This method also restricts students' exploratory spirit to a certain extent, making students lack their own thoughts. Even in practical classes, students cannot move freely but have to complete tasks assigned by teachers step by step.

2.3 Uneven Student Levels. The Zero-Start Teaching Model is Difficult to Implement

Due to different family conditions, many students have different starting points in IT enlightenment education. Some may have been exposed to computers early, while others may be first exposed to computers when the school starts the course. This makes it impossible to start together. The courses you teach may have been learned or self-explored by some students, who can operate skillfully. However, some students are first exposed to computers and may need to repeat the teaching process many times to learn. This makes it difficult to continue the course according to the old teaching method [3].

3. The Necessity of Introducing MI Theory into IT Education in Primary and Secondary Schools

Introducing MI theory into IT education in primary and secondary schools can more effectively accelerate and help teachers and students establish a harmonious relationship. Moreover, the application of MI theory to IT education is in line with the development of the times and is an inevitable trend. As teachers in the 21st century, we must keep pace with the times, master the latest teaching methods, and maintain advanced teaching ideas to keep up with the forefront of the profession and the discipline and remain invincible. We have found that after applying MI theory in IT classrooms in primary and secondary schools, 70% of students' grades have significantly improved, and 90% of students' classroom discipline has become much better.

3.1 Students' Attention is More Focused in Class

When teachers demonstrate how to operate, that is, when teachers demonstrate the steps of operation, some students used to play with their own things. Now, students will carefully watch your steps. Some students will follow your operations step by step. Even if some students do not understand at the time, they will raise their hands to ask the teacher after the teacher finishes the operation, or some students will ask other students for help. Students' learning interest has been significantly improved, and the learning atmosphere has also been improved to a certain extent [4]. Specifically, as follows:

3.2 Classroom Discipline has Significantly Improved

During practical operation courses, students rarely play games as before. They actively complete the tasks assigned by the teacher. Some students with strong practical abilities do not rush to play games after completing the tasks assigned by the teacher, but do some other things related to the content they have learned and that they like. After applying MI theory, students have become interested in IT courses.

3.3 Students' Learning Outcomes will be Significantly Improved

In the past, when assigning tasks, students made more or less mistakes. However, after applying

MI theory, the error rate of students has significantly decreased. Although there are still mistakes, the errors are more concentrated and not as diverse as before.

3.4 Students' Learning Efficiency will be Significantly Improved

In the past, teachers had to repeat a simple knowledge point many times. However, after applying MI theory, it seems that teaching is no longer as tiring as before [5]. Many times, students can learn how to operate after only one explanation of a knowledge point.

3.5 Students can have a more thorough Understanding of Knowledge

Because students are given time for introspection, I have found that students have a more thorough understanding of knowledge points. Many times, when you teach one knowledge point and then another, students have already understood it. They start to think for themselves and achieve the effect of learning by analogy [6].

3.6 Students' Self-Learning Ability will be improved

Some students have begun to learn self-study. They selectively learn the knowledge they are interested in. Before the teacher teaches, students have already started to look at the textbooks and self-study the knowledge they want to learn.

4. Methods of Applying MI Theory to IT Education in Primary and Secondary Schools

In IT classrooms, we find that each child's intelligence in various aspects is different and there are differences. Therefore, we need to have a general understanding of students first. At least, we need to know which intelligence is more prominent in which student compared to other intelligences. Then, we can teach according to the strengths of each student's intelligence.

4.1 Give Students Time to Reflect

During lectures, discussions, or other activities, students should be given time to introspect or think. Students should have time to connect new knowledge with old knowledge, see if there are any similarities, or students can combine new knowledge with practical applications in life. In short, give students some time to introspect [7].

4.2 Teachers should also relate to Reality When Teaching

When teachers explain knowledge points, they can give examples of related things in real life, that is, connect the knowledge being taught with their life experiences. This allows students to better understand the knowledge they are learning and enables students to apply what they have learned to life, allowing students to use textbook knowledge in life.

4.3 Set Goals

The goal itself should be closely related to learning outcomes or life goals, helping students prepare for their studies and setting a goal for them. This will give students something to strive for in the learning process. Knowing where the goal is, students will constantly review themselves to see which aspects still have gaps with the goal and need more effort.

4.4 Task-driven and Competitive Awareness

Research on MI theory shows that intelligence is inseparable from real-life situations. The most effective learning activities are when various learning factors are in harmony. In the process of IT teaching, we can set some real-life tasks related to real life. For example, when learning PPT, we can first show students the electronic photo albums we made, allowing students to fully experience that this is an interesting and widely used software in real life, thus making them like PPT. Then we can teach the specific steps. I believe that once students' interest is aroused, they will listen carefully and may have their own ideas during the lecture. In this way, our classroom atmosphere will be perfect. We can also propose competition links in classroom tasks, and students will definitely work harder [8].

4.5 Group Learning and Cooperative Learning

In the process of teaching, we should reasonably use group learning and cooperative learning. When assigning tasks, we can divide students into several groups, allowing students to assign roles in the group according to their intelligence strengths, choose suitable roles for themselves, and cooperate with each other. This often achieves unexpected results.

4.6 Emphasize Communication and Create a Good Atmosphere

In the process of teaching, we should pay attention to the formation of a teaching atmosphere. In this aspect, we should pay attention to the communication between teachers and students, that is, the classroom should be a space for teacher-student communication. We should change the previous purely didactic teaching method [9]. When we teach, we should always pay attention to communication with students. The relationship between teachers and students can actually be a very good friendship.

The key point of interpersonal intelligence is to understand others' emotions and intentions in communication and to handle interpersonal relationships harmoniously. In teaching, we should pay attention to a good relationship between teachers and students and among students. In fact, teachers can have a very good friendship with students. We can stand on an equal footing to express our respective views.

For example, in teaching, we can adopt a cooperative learning model, that is, using a group format to achieve teaching objectives. Each group can have about 3 to 8 people assigned a task, such as making a PPT on a certain topic [10]. Then, in the cooperative group, students can take on different roles based on different intelligence strengths. For example, students with strong visual-spatial intelligence can be responsible for selecting and arranging pictures, while students with strong linguistic intelligence can be responsible for writing the text in the PPT. In short, each student is assigned tasks based on their strengths, everyone communicates and completes the task together, which often achieves twice the result with half the effort [11].

4.7 Flexible Application and Emphasis on Creativity

Based on research on MI theory, we can find that students' various intelligences are based on practice [12]. Therefore, when students are learning, teachers should pay attention to connecting with reality and teaching students to apply flexibly. For example, when teaching the basic operations of drawing, when allowing students to learn to draw, students can be allowed to think about what they want to draw and draw whatever they like, instead of copying everything from the textbook and only asking students to draw the content required by the exercises after class. This

greatly reduces students' creativity and desire to learn [13]. Therefore, in the teaching process, after teachers teach the basic operations, students should be allowed to create what they want, thereby stimulating students' creativity [14]. Research on MI theory indicates that individual intelligence should be reflected in their creativity, which is part of MI theory. Therefore, we must not ignore students' creativity in the teaching process [15].

5. Conclusion

By applying MI theory, we can design learning tasks of different levels, flexibly use a variety of teaching methods, and conduct multi-dimensional evaluations of students' learning outcomes, efficiency, and quality. This not only takes care of students' all-round development but also takes care of their individual growth. Through research on the application of MI theory to IT education in primary and secondary schools, we can provide teachers, especially IT teachers, with a new teaching method and idea, enabling them to better use MI theory in the field of IT education to promote students' all-round development and achieve better results [16].

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