

Research on the integration path of primary school visually impaired mathematics teaching and labor education

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ABSTRACT

With the continuous updating and progress of educational philosophy, inclusive education has gradually become an important development direction in the field of special education. This education model emphasizes the integration of students with special needs and ordinary students to learn and grow together, aiming to provide an inclusive and equal education environment for all students. This paper aims to explore the path of integrating labor education into mathematics teaching for visually impaired students in primary schools, so as to promote the all-round development of visually impaired students. By analyzing the learning characteristics of visually impaired students and the connotation of labor education, this paper puts forward a series of integration strategies, and discusses the challenges and Countermeasures in the implementation process.

KEYWORDS

visually impaired students; Mathematics teaching; Labor education; Fusion path

Inclusive education refers to providing appropriate education services for students with special needs in the general education environment. For visually impaired students, the integration of mathematics teaching and labor education can not only help to improve their mathematical ability, but also cultivate their self-care ability and labor skills, and promote the development of their social adaptability.

1 Mathematics learning characteristics of visually impaired students

In the process of mathematics learning, visually impaired students face special challenges different from ordinary students due to the lack of visual ability. Their spatial perception ability is limited, and they often find it difficult to understand geometric figures and spatial relationships that need visual assistance, especially when learning geometry and other mathematical branches. It is difficult for visually impaired students to grasp the shape, size and position of graphics in an intuitive way, which constitutes a huge obstacle for them to understand geometric concepts and solve problems.

At the same time, when operating the physical model or conducting experiments, visually impaired students often encounter obstacles and cannot intuitively feel and understand mathematical concepts like other students. When they explore mathematical principles, they often cannot rely on visual clues, which limits their ability to learn from practice. Therefore, teachers must fully consider these factors in the teaching process and adopt more flexible and creative teaching methods.

For example, by using tactile maps, teachers can help visually impaired students feel the boundaries and structure of the graphics, so as to establish a visual understanding of mathematical concepts in their minds. The tactile map represents each part of the graph through different textures and height differences, so that visually impaired students can recognize and understand geometric shapes through touch.

Braille teaching material is another important teaching tool, which enables visually impaired students to read mathematical symbols and formulas by touching, so as to learn mathematical theory. The use of audio AIDS, such as calculators with voice output or mathematical software, can help visually impaired students understand the process and results of mathematical operations through hearing.

In addition, teachers also need to patiently guide visually impaired students to make up for the lack of visual information through language description and auditory assistance. They can help students build a scene of mathematical problems in their minds through detailed oral explanations, or convey the dynamic changes of graphics through the changes of sound, so that visually impaired students can find their own learning path in the world of mathematics.

In this process, teachers' language must be accurate and vivid, so that visually impaired students can better understand and remember mathematical concepts. At the same time, teachers also need to encourage visually impaired students to actively participate in classroom discussions and deepen their understanding of mathematical knowledge through interaction.

Through these methods, visually impaired students can gradually overcome the difficulties in learning and achieve the improvement of mathematical ability. They can master mathematical principles and solve mathematical problems in a

non visual way, and even show unique advantages in some fields. The goal of this education is not only to enable visually impaired students to master mathematical knowledge, but also to cultivate their ability to think independently and solve problems, so that they can face challenges confidently in their future study and life.

2 Connotation and significance of labor education

Labor education, as a comprehensive and profound form of education, its connotation is far beyond the simple skill teaching. It is a comprehensive educational practice, which aims to cultivate students' labor emotion, attitude and values. In this process, students not only learn specific labor knowledge and skills, but also plant the seeds of respecting and loving labor in their hearts. Labor education enables students to gradually form good working habits in hands-on practice, which has a far-reaching impact on their future life and work.

The far-reaching significance of labor education lies in that it can cultivate a sense of responsibility and the spirit of collectivism in the hearts of students. In the process of labor, students realize the dignity and value of labor, and realize that they are a member of the social family. Everyone's efforts are the cornerstone of social progress. For visually impaired students, the significance of labor education is even more extraordinary. It not only helps them improve their self-care ability, make them more adaptive and independent in daily life, but also virtually enhances their self-confidence and self-worth.

By participating in labor, visually impaired students have the opportunity to feel their contribution to society. This sense of participation and achievement is a powerful driving force for their mental health and social integration. In labor, they learned to face challenges and overcome difficulties. This experience is crucial for their growth and development. Labor education provides a platform for visually impaired students to show themselves and realize their self-worth, so that they can find their own position in labor and realize their ability and potential.

Therefore, labor education has irreplaceable practical significance for the comprehensive development of visually impaired students. It is not only the teaching of skills, but also the shaping of spirit and the guidance of value. Labor education opens a door to self-confidence, self-reliance and self-improvement for visually impaired students, allowing them to grow up in labor and feel the true meaning of life in their growth. In this process, visually impaired students have learned how to cooperate with others and how to play a role in the team. These experiences will become their valuable life wealth.

3 Exploration of integration path

(1) Integrate course content

When exploring a new way to integrate mathematics education and labor education, we focus on the organic integration of curriculum content. The core of this strategy is to break the traditional abstraction of mathematical knowledge, closely connect it with real life, and let students feel the charm of mathematics in practical activities. Through a series of carefully designed teaching activities, such as the production of handicrafts, students have the opportunity to directly contact and construct geometric figures in hands-on practice. This teaching method not only improves their hands-on ability, but also unconsciously imparts mathematical knowledge such as measurement, comparison and symmetry.

In this teaching mode, mathematics is no longer isolated from symbols and formulas in books, but transformed into concrete objects that can be touched and perceived. In the process of making handicrafts, students constantly carry out measurement, cutting, adjustment and optimization. These operations let them naturally understand the mathematical principles in practice. This experiential learning not only deepens students' understanding of mathematical concepts, but also enhances their memory.

By combining mathematics education with labor education, the learning process becomes more vivid and interesting. The students have gained a sense of achievement in their participation, and their learning enthusiasm and participation have been significantly improved. This integrated teaching provides students with a more comprehensive and three-dimensional learning environment, allowing them to find and solve problems in the hands-on operation, so as to cultivate their innovative thinking and practical application ability.

(2) Creating situational teaching

In the process of exploring the integration of mathematics education and labor education, creating situational teaching has become a key teaching strategy. This strategy allows students to naturally use mathematical knowledge in labor practice by constructing simulated or real life scenes, effectively overcoming the abstraction and monotony of traditional mathematics education. For example, in the situation of simulating kitchen labor, students no longer passively accept mathematical concepts, but actively learn and apply them in practice.

In this scene, students unconsciously master the mathematical knowledge of time management and measurement units in the process of preparing ingredients, calculating the proportion and measuring the cooking time. What they experience in this process is not only the fun of cooking, but also the practical application of mathematics in real life. This kind of situational teaching makes mathematics learning concrete and vivid, so that students can intuitively feel the close connection between mathematics and daily life.

In this teaching mode, students' various problems and challenges in operation have become the catalyst for their use of mathematical thinking. They need to think about how to accurately measure and reasonably distribute food materials. These practical problems urge them to actively find mathematical tools to solve the problem. This kind of learning in practice not only improves students' ability to apply mathematical knowledge to practical situations, but also makes them deeply aware of the important role of mathematics in life.

By creating situational teaching, students' interest and motivation in mathematics have been greatly stimulated. They no longer think that mathematics is a distant symbol and formula, but has become a powerful tool to solve practical problems. This teaching method not only enhances the interest of mathematics learning, but also improves students' participation and autonomous learning ability, and lays a solid foundation for their all-round development.

(3) Using assistive technology

In the process of promoting the integration of mathematics education and labor education, the application of assistive technology is particularly important for visually impaired students. These technologies provide visually impaired students with equal opportunities to learn mathematics and ensure that they are not affected by visual restrictions in the learning process. We use Braille, audio books, tactile teaching aids and other auxiliary technologies to build a comprehensive learning support system for visually impaired students.

Braille, as a kind of tactile writing, enables visually impaired students to perceive mathematical formulas and theories through the delicate touch of their fingertips, so that they can independently read and master mathematical knowledge. Audio reading materials convey the solution of mathematical problems and logical thinking to visually impaired students through clear voice, so that they can build the structure of mathematical concepts on hearing. The tactile teaching aids enable visually impaired students to feel the outline, size and proportion of geometric shapes through personal touch, so as to describe the spatial relationship of mathematical graphics in their hearts.

The application of these auxiliary technologies not only helps visually impaired students overcome the physical barriers to learning mathematics, but also improves their self-confidence and learning motivation at the psychological level. Mathematics is no longer a distant abstract concept, but a concrete existence that can be perceived through hearing and touch. In such a learning environment, visually impaired students can more actively and actively participate in mathematical exploration, and their learning efficiency has been significantly improved.

Through this integration path, we have opened a door to the mathematical world for visually impaired students, so that they can freely explore in the ocean of mathematics and enjoy the fun of learning. This educational model not only promotes the mathematics learning of visually impaired students, but also embodies the principles of educational fairness and inclusiveness, laying a solid foundation for their all-round development. In this process, visually impaired students not only learn mathematics knowledge, but also learn how to use different senses to understand the world. The cultivation of this ability will accompany them throughout their life and become an important capital for them to face future challenges.

(4) Home school social synergy

In the process of promoting the integration of mathematics education and labor education, the cooperation between home, school and society is particularly critical. This synergy is not only the innovation of education mode, but also the construction of a comprehensive and multi-level education support network. Through the bridge of home school cooperation, we have brought together the forces of family, school and society to help the education and development of visually impaired students.

Parents, as the first teachers of their children's growth, their participation provides rich resources and profound emotional support for school education. At home, parents can create a working environment suitable for visually impaired children and cultivate their children's independence and sense of responsibility through daily work practice. This penetration of family education and the educational objectives of the school complement each other, and jointly shape the basis for the all-round development of visually impaired students.

The support from all walks of life has opened up a new world for the labor education of visually impaired students. Enterprises, communities and non-profit organizations provide practical opportunities for visually impaired students to experience labor in a real social environment, which not only makes them feel the dignity and fun of labor, but also exercises their social adaptability. This kind of social practice experience can not be replaced by classroom education.

This home school social collaborative education model provides a diversified path for the growth of visually impaired students. It not only promotes the visually impaired students' understanding and application of mathematics and labor knowledge, but also deepens the social understanding and support for special education. In this process, visually

impaired students are no longer simply educated, but become active participants and contributors in social activities. Every progress and success of them convey the values of inclusiveness, equality and respect to the society.

Through this collaborative cooperation, visually impaired students find the realization of their self-worth in labor, and their growth stories encourage more people to pay attention to and participate in the cause of special education. The deepening of this education not only paves a solid path for the growth of visually impaired students, but also lays a solid foundation for building a more harmonious and inclusive society. The cooperation between home, school and society makes education more warm and enables every child to thrive under the care of society.

4 Implementation challenges and Countermeasures

(1) Teacher professional development

In the process of improving the quality of education for visually impaired students, teachers' professional development is facing major challenges. In order to meet the special needs of visually impaired students and pay attention to the value of labor education, teachers need to receive in-depth training and the support of educational resources. The training content will comprehensively cover the key areas of visually impaired students' psychological growth, communication habits, learning behavior and so on, with special emphasis on how to integrate these knowledge points in the practice of labor education. Through these trainings, teachers will be able to better understand the needs of visually impaired students, so as to provide more effective teaching guidance.

At the same time, in order to promote mutual learning and growth among teachers, seminars and exchange meetings will be held regularly. These activities will provide a platform for teachers to exchange successful experiences and innovative practices in the education of visually impaired students. Such interaction not only helps teachers broaden their horizons, but also encourages them to continuously improve their teaching skills. Through continuous learning and sharing, teachers will better adapt to the complex challenges of educating visually impaired students and contribute their own strength to the comprehensive development of students.

(2) Development of teaching resources

In order to ensure that visually impaired students can obtain equal learning opportunities in labor education and mathematics learning, a series of teaching resources will be developed specifically for their special needs. These resources include tactile books, which convey information through different textures and shapes, so that visually impaired students can explore and learn through touch; Braille textbooks provide another way to read and acquire knowledge; Audiobooks, using audio to explain complex mathematical concepts and labor skills; And other auxiliary technologies, such as voice recognition software and wearable devices, are all designed to help visually impaired students better perceive and understand the teaching content.

The development of these teaching resources will focus on the connection with the curriculum content of ordinary students, ensure that visually impaired students will not feel disconnected in the learning process, and promote the in-depth implementation of integrated education. Through such resources, visually impaired students can not only learn mathematics and labor skills, but also participate in classroom activities with their peers to enhance their social interaction and learning motivation. Such teaching resources are designed to break down learning barriers and enable visually impaired students to grow up in a more inclusive and diverse educational environment.

(3) Safety and health assurance

In the implementation of labor education, the safety and health of visually impaired students is the primary consideration. To this end, a series of strict safety guidelines and operating procedures will be formulated to ensure that every labor education activity can be carried out in a safe environment. Taking into account the physical ability of visually impaired students, the labor intensity will be appropriately adjusted to avoid them bearing excessive physical burden, and necessary personal protective equipment will be provided for them to reduce the risk of injury.

At the same time, in order to ensure the physical and mental health of visually impaired students in labor education, their health status will be regularly monitored to ensure that they can get appropriate rest and necessary care during activities. This series of measures aims to create a safe and healthy learning environment for visually impaired students, so that they can enjoy the fun of learning while participating in labor education without worrying about their own safety and health problems. Through such safeguard measures, visually impaired students can participate in labor practice with more confidence and focus, so as to better realize self-growth and development.

5 Conclusion

Integrating labor education into mathematics teaching for visually impaired students can not only improve their interest and ability in mathematics learning, but also promote the development of their life skills and social adaptability.

Through the integration of curriculum content, the creation of situational teaching, the use of assistive technology and home school social collaboration and other strategies, we can effectively achieve the integration of the two, and provide an all-round development education environment for visually impaired students.

Looking forward to the future, the deep integration of visually impaired mathematics teaching and labor education will still be an important issue in the field of education. With the continuous progress of educational philosophy and the continuous development of technology, we have reason to believe that this integration path will be broader and provide more diverse and comprehensive learning opportunities for visually impaired students. Through continuous exploration and practice, we will further improve this education mode, so that visually impaired students can grow up in a more equal and inclusive environment and realize their dreams and potential. Finally, this will not only promote the personal development of visually impaired students, but also contribute to the progress and harmony of the whole society.

References

- [1] Ruixi L .Research on Strategies for Enhancing the Effectiveness of University Labor Education in the Context of "Sanquan Education"[J].Journal of Contemporary Educational Research,2024,8(12):72-81.
- [2] Navarrete M ,Aravena D ,Erber P .Use of an oral hygiene education handout in Braille for the visually impaired.[J].Journal of dental education, 2024,
- [3] Liu H. Exploration of Advanced Mathematics Classroom Teaching in the Context of Unfavorable Learning Situation [C] // International Academic Exchange Center for Science and Culture, Mianyang Dance and Cultural Art Research Center, Zhengzhou Daaao Conference Service Co., Ltd. Proceedings of the 9th International Conference on Contemporary Education, Social Sciences and Humanities. Shandong Technology and Business University, 2024:113-118. DOI:10.26914/c.cnkihy.2024.012974.
- [4] Cao Y ,An S ,Lavicza Z , et al.Editorial: Psychological studies in the teaching, learning and assessment of mathematics[J].Frontiers in Psychology, 2024,151389267-1389267.
- [5] Aygıl T ,Hasan Ö .Special education preservice teachers' mathematics teaching self-efficacy beliefs[J].Educational Studies,2024,50(2):224-242.