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## Cultivating the professional philosophy of primary school mathematics teachers in the context of "double reduction"

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### Abstract

Teachers' professional philosophy is a fusion of teachers' emotional attitudes and values towards the cause of education, a psychological tendency of teachers' professional behavior, and a concentrated expression of teachers' professional ethics. In the context of the "double reduction" policy, there are problems in the cultivation of primary school mathematics teachers' professional philosophy, such as unclear professional ideals, failure to change teachers' role and failure to correctly establish a modern view of education. In order to promote the professional development of primary school mathematics teachers and to facilitate the implementation of the "double reduction" policy, it is necessary to optimise the policy on the cultivation of primary school mathematics teachers' professional philosophies: to have a strong professional ideal, to establish a correct view of modern education, to shape a new view of the role of teachers and to pursue a positive view of professional interaction.

**Keywords:** double reduction, primary school mathematics, teachers, professional philosophy

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### Introduction

In order to reshape the educational climate, the General Office of the Central Committee of the Communist Party of China and the General Office of the State Council issued the Opinions on Further Reducing the Burden of Homework and Off-Campus Training on Students at the Compulsory Education Level <sup>[1]</sup> (hereinafter referred to as the "double reduction" policy), which, while coordinating to reduce the pressure on students and parents, has undoubtedly put teachers to the test. Mathematics is one of the most important subjects in primary school, and it is the foundation for future mathematical thinking. In the past, teachers focused more on practice in primary school mathematics, but the "double reduction" has reduced students' learning time and made it a challenge for primary school mathematics teachers to improve the efficiency of their students' mathematics learning. As the main designer and implementer of mathematics for primary school students, the primary school mathematics teacher naturally has a greater responsibility and mission. The professionalism and complexity of the teaching profession are becoming more and more significant as the quality of the nation's population improves and society's requirements for teachers' educational philosophy and professional quality are raised, and in this situation, it is important and necessary to develop a professional philosophy for primary school mathematics teachers.

### The Connotation of the Concept of Professionalism

The concept of "teacher professionalism" firstly appeared in the United States, and later, as the field of education developed, it became the consensus of the whole society. The concept of professionalism is the precursor to action, and the concept of professionalism is a teacher's view of educational phenomena and issues, based on practical experience in teaching, and summarises certain educational laws, which are externalised and reflected in daily educational actions. The professional philosophy of teachers changes dynamically as a result of changes in the times. Professor Chen Guisheng explains professional philosophy as "the concept of good education." <sup>[2]</sup> In his view, a teacher's professional philosophy is a concept that starts from the subject. Professor Ye Lan says that professional philosophy includes "futuraity", "vitality" and "sociality" at the level of values and "initiative" and "potential" at the level of students' views, "potential" and "difference" at the student level, and "bilateral co-occurrence", "flexible structure" and "dynamic generation" at the activity level. "The ten concepts of "dynamic generation" and "integrated permeability" <sup>[3]</sup>, which answer the demands made by the times while chasing the pace of the times, see the self-consciousness of life, consider people as subjects, and let This statement, while following the pace of the times, answers the demands of the times. It also marks the emergence of this idea from the confines of philosophical thinking to all areas of society. Professor Lanying proposed that "the concept of the purpose of education, the concept of the teacher's profession, the concept of educational activity and the concept of the teacher's self-development make up the concept of the teacher's profession. <sup>[4]</sup>" In Zhao Pengcheng's edited edition of Pedagogy, the teacher's professional philosophy is understood as the understanding and cognition of the teaching profession, the teacher's attitude and behaviour towards students, the teacher's attitude and behaviour in education and teaching, and the teacher's personal cultivation <sup>[5]</sup>. In the discourses of several

professors and scholars above, it can be found that their understanding of professional philosophy involves several levels in education, profession, students, individuals and activities. For example, Mr. Ye Lan's values are for basic education, which should focus on student development and education should follow the changes in society and make adjustments. The student view is for students while the activity view is a visual representation of the activity level. Categorised in this way, Professor Lanying's four perspectives can also be seen as relating to education, occupation, activity and the individual. The four aspects of Mr. Zhao Pengcheng's concept coincide with those of the profession, the student, the activity and the individual. Therefore, when conceptualising the professional philosophy, it is impossible to avoid categorising it from these levels. It is under the guidance of the professional philosophy that the teacher's behaviour can better reflect his or her professionalism standing in the position of education to recognise and deal with students' problems. Teachers' professional philosophy is a fusion of teachers' emotional attitudes and values towards education, a psychological disposition towards their professional behaviour, a concentrated expression of their professional ethics, and a spiritual pillar and fundamental motivation for their professional development <sup>[6]</sup>. In this paper, the author argues that teachers' professional philosophy consists of professional ideals, a modern view of education, a teacher's role and a view of professional interaction, based on the inclusion of these levels of education, profession, students, individuals and activities.

### **Professional Ideals**

In the book "How to be a Highly Effective Teacher", the authors mention that highly effective teachers should have the ability to maintain positive expectations <sup>[7]</sup>. A teacher's professional ideal is the spiritual desire of a teacher to make a difference in their educational career and to become a mature and excellent teacher. Such aspirations are often unquantifiable and may change depending on the subjective perceptions of the individual and the surrounding environment, but they are the spiritual motivation for teachers to pursue a career in education. The "double reduction" policy is a pressure and a motivation for primary school mathematics teachers. Once the knowledge has been transferred back to the classroom, it is up to each and every serving primary school mathematics teacher to work out how to transfer it efficiently into the students' heads. The professional ideal is the teacher's choice of profession and the extent to which he or she is interested in the subject and cares for the students.

### **A Modern View of Education**

A modern view of education is a part of the teaching and education process that teachers cannot afford to part with today. In order to nurture new generations of innovative and practical students, teachers must have a modern view of education. The right concept of education is aimed at all students and aims to promote their all-round development. Primary school mathematics teachers need to identify the bright spots in their students with the greatest respect for differences and to help each student develop holistically, permeating the learning with moral, intellectual, physical, social and aesthetic qualities. In the final analysis, the concept of education is based on love for students, what society needs, and what teachers can train, but education can also transcend the limitations of the times.

### **The Role of the Teacher**

The transformation of the role of the teacher is an important factor in the development of social education. In his Emile, Rousseau proposed that what he considered to be the principle of good education was "not to teach him all kinds of learning, but to cultivate in him an interest in learning, and, while this interest grows, to teach him the methods of studying" <sup>[8]</sup>. means to present what is already known, allowing students to dig themselves out, innovate on their own and acquire knowledge on their own initiative.

### **A View of Professional Interaction**

As a profession, teachers are faced with a variety of interpersonal interactions. In addition to the teacher-student relationship, which is a necessary adjunct to the teaching process, teachers also face relationships with colleagues and parents. The modern teacher-student relationship is no longer one of mutual respect, but of mutual growth. The relationship between teacher and colleague is about mutual cooperation. The relationship between teachers and parents is an important part of the student education and learning process. Only by establishing a good relationship between teachers and parents can we better achieve the goal of educational growth and truly nurture a good child.

### **The Current Situation of the Professional Philosophy of Primary School Mathematics Teachers in the Context of "Double Reduction."**

The professional philosophy of teachers is often expressed in their daily performance, and as primary school teachers, their behaviour is more exemplary and advanced. At present, there are still problems with the professional philosophy of primary school mathematics teachers due to various factors.

### **Unclear Professional Ideals**

Some teachers choose the teaching profession because they accept it superficially but do not feel it internally. In their hearts, they do not really "enjoy their profession". The simplicity and homogeneity of the content of primary school mathematics has led some mathematics teachers to develop a kind of inertia in their work, not

studying the content of the curriculum and the psychology of students, and lacking the professional responsibility they should have. They are impatient and bring their personal emotions into their work, devoting a lot of their time and energy to personal matters after school, and lacking the professionalism they should have. The pursuit of profit shifts the focus of work to practical interests such as job evaluation and performance assessment, ignoring the real needs of students and lacking the love that is expected of them. At present, most primary school mathematics teachers use conventional teaching methods in the teaching process, gnawing on the "old books" of the past, sticking to traditional teaching methods, focusing only on the "one book" teaching method, unable to take the initiative and add new forms of teaching to the classroom. The teachers' willingness to develop themselves is also low. In addition, teachers' willingness to develop themselves is not high, and they often "skip" or do not listen to some of the teacher training organised by the school.

### **Modern Views of Education are not Properly Established**

Contemporary primary school mathematics teachers still define their students by the numbers on their examination papers, and the assessment system does not cover students' verbal communication, social skills and independent learning, which is one of the reasons behind the introduction of "double reduction". In the classroom setting, the same teaching programme is used to teach students at different levels, and students of different levels are given the same tasks, all of which is a way of seeing the differences in students but choosing to use superficial "equality" to hide the fact that they are not equal. These are all ways of seeing the differences in students but choosing to use superficial 'equality' to hide the inequalities in reality. Before the "double reduction", some maths teachers asked parents to check the homework they had been given, which undoubtedly shifted the responsibility for education to parents.

### **Failure to Change the Role of Teachers**

Despite the ongoing curriculum reform, a significant proportion of the primary school mathematics teacher community still clings to their old ways of thinking. The classroom is basically fixed by the examination model, and all processes are copycat. Teachers prepare lessons in an "assembly line" style, looking for problems, doing them and talking about them, so that students' understanding of mathematics is only cold numbers and simple geometry. Primary school mathematics teachers see themselves as 'couriers' of knowledge and their role is to instil knowledge from the textbook into primary school students. This often results in a situation where the teacher teaches the pupils mathematical knowledge in the classroom and allows them to complete the corresponding exercises, with the teacher explaining the key points at the end. This set of exercises may seem to complete the transfer of knowledge, but in reality this kind of education is ineffective. "The purpose of education is to grow," and this model does not allow learning to grow in the true sense of the word. Teachers need to change their role from that of "courier" to that of "picker", sorting and organising knowledge so that students can acquire it through their own means.

### **Incomplete Views of Professional Interaction**

The most distinctive feature that distinguishes teachers from other professions is their role as teachers, but some mathematics teachers fail to set an example in front of their students. Primary school students are at a critical stage in their mental development, and their behaviour is often modelled on that of the adults around them, so the unstandardised language used by primary school teachers and their inappropriate attire can have a negative impact on students. In practice, some primary school mathematics teachers may see communication with parents as simply the responsibility of the class teacher, and are thus reluctant to take the initiative to build links with parents. This misconception and behaviour often results in parents not receiving timely feedback on their children's learning, which ultimately prevents effective home-school linkages. In addition, some primary school mathematics teachers are unable to form good cooperative relationships with their colleagues. There is a strong culture of 'seniority' among primary school teachers, with younger teachers not actively asking older teachers for experience and older teachers not actively teaching newer teachers. These are incorrect views of interaction.

### **The Strategy of Cultivating the Professional Philosophy of Primary School Mathematics Teachers.**

#### **Having a Strong Professional Ideal**

Primary school students lack independence of thought and are more dependent on their teachers. Therefore, as primary school teachers, they need more patience and responsibility to help students develop good learning habits at the beginning stage. After the "double reduction", the primary school mathematics classroom is more golden, and primary school teachers need to internalise the concept of learning, innovate teaching methods and take the initiative to improve the quality of classroom teaching. Primary school mathematics is a popular mathematics rather than an elite mathematics, and the knowledge points in primary school mathematics are mostly basic and practical. Therefore, primary school mathematics teachers can set their knowledge in the context of real life more often, so that students can discover and solve the mathematics in life, such as using coins to buy daily necessities and using bar charts to count the cost of living of the class, and so on. In addition, primary school students are physically and mentally immature and are easily influenced by their surroundings. The "double reduction" policy is a return to the original intention of education, so as primary school teachers, we need to be closer to our students in our daily lives and think more about their problems from their perspective. They can also become friends of their students outside the classroom and listen to their voices. In addition,

primary school teachers need to recognise the need for and importance of 'double reduction', actively implement it, and take the initiative to reflect on it after school, providing a wide range of services after school to give students a reliable space to develop freely. Primary school teachers must also learn to manage the relationship between their professional roles and their personal lives, and to use their ideals to guide their work and build a sense of professional identity.

### **Establishing a Correct View of Modern Education**

Modern education must revolve around equity. The introduction of "double reduction" is a favourable guarantee to promote education equity. In the context of the times, parents are forward-looking and enroll their children in various extra-curricular coaching classes, which has led to a rise in the cost of various coaching classes, discouraging some families and making education resources a commodity that we all compete for. Primary school teachers are part of the educational resources, and as teachers we need to make these resources infinitely more available, and to optimise and upgrade them. In the process of teaching, we must always remember that students are a living, breathing group of educated people, and that the original purpose of education is to promote human development. With the implementation of the "double reduction" policy in primary schools around the world, students' learning time is being compressed, and the quality of learning is very important at this time, which requires primary school teachers to grasp the latest developments according to the characteristics of students in real time, so that the content is scientific and reasonable, and the form is rich and varied. In addition, primary school teachers need to reflect on the phases, to teach in different contexts, to break the shackles of "experience" and to avoid homogenisation of form and content. "Although the knowledge of primary school mathematics is not complicated, primary school mathematics teachers should not only master the knowledge of primary school mathematics, but also spread the knowledge to other aspects of the subject, so that students can use it in practice. Education is not just about subjects, it is about the whole person. As a primary school mathematics teacher, every time you appear in front of your students you are a 'role model', and as a teacher you need to pay attention to your own words and actions, to pass on the right values to your students, to pull the strings of quality education beyond the subjects. We need to be mindful of our own words and actions, and to impart the right values to our students.

### **Shaping a New View of the Role of Teachers**

Primary school teachers must learn to transform their identities. In the face of a less independent group of primary school students, primary school teachers must focus on "teaching" rather than "helping", and must guide students to imitate consciously. As educators, they must learn to let go of their students rather than being their 'full-time nanny'. The traditional "educator-centred" classroom should be transformed into a "learner-centred" one, rejecting "duck-fill education" and learning "individual education". The learning curve is very strong. Primary school students are very strong learners, so it is important to focus on developing their thinking patterns at primary level, moving away from a focus on theory rather than process to a focus on conclusions and more on process. Innovation and creative education is a contemporary concern and primary school teachers can only use innovative teaching methods to achieve educational diversity and improve pupils' receptiveness. Primary school teachers can create situations to hit the ignition point of their students' minds in order to awaken their thinking systems according to their age level. The use of group learning mechanisms in the classroom gives the classroom back to the students and from it develops their ability to collaborate and compete. When students explore knowledge in learning with joy, inquire into learning challenges with curiosity, participate authentically in the classroom using their acquired knowledge and acquire new knowledge through their senses, then students acquire subject matter literacy beyond knowledge skills.

### **Adopting a Positive View of Professional Engagement**

Lieberman (A.) and others' findings on teachers' work suggest that 'teaching is effectively an isolated enterprise. It is perhaps the greatest irony and the greatest tragedy of teaching that so many people accomplish such a coherent mission in such a small space and compact time, but it does so in the isolation of self-imposed and professional identities.<sup>[9]</sup> "To change such a tragedy, attention must be paid to developing the interpersonal skills of primary school teachers. In the teacher-student relationship, it is important to recognise that teachers are faced with primary school students who are resourceful, perceptive and active, and to establish channels of emotional communication with them on the basis of respect, and finally to build a good teacher-student relationship with them.

In the relationship with colleagues, it is important to get out of the closed cage of structure and learn to communicate with teachers from different subjects and schools, to learn by walking around, to gain experience and to achieve mutual success. In the relationship with parents, we must pay attention to timely communication with parents, guide their educational thinking, and form a home-school "linkage" to work together for the education of students. Mathematics, as one of the seven basic subjects, has an irreplaceable importance in the learning career.

In order to meet the scientific, rational and principled requirements of primary school mathematics teaching, the majority of primary school teachers should cultivate their moral character and educate others with moral sentiments and charisma to guide students' growth.

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