

# Review of research into teachers' beliefs at home and abroad

Lifei Luo

MA English Education, School of Foreign Languages, Yangtze University, China

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## **Abstract**

*Teachers' belief is an important research field in teacher education research, and related practices and research have been increasing in recent years. This paper summarizes and sorts out the research on foreign language teachers' beliefs in primary and secondary schools at home and abroad from four aspects: the definition of the concept of teachers' beliefs, the influencing factors of teachers' beliefs, the research on the relationship between teachers' beliefs and teaching practices, and the research on teachers' beliefs and teachers' professional development. Specifically, teachers' beliefs are the views, attitudes, and psychological tendencies that teachers hold for truth about teaching-related factors in the teaching process. Its formation and change are mainly affected by personal background factors and social environment factors; Teachers' beliefs and teaching behaviors influence each other, but they are not always consistent; Teacher professional development is the driving force behind changes in teachers' beliefs. Finally, the paper points out that the future research on teachers' beliefs in China can also expand the research objects, pay attention to the application of qualitative research methods, and focus on the dynamic research of teachers' beliefs and the research related to teachers' beliefs and teachers' professional development.*

**Keywords—** Teachers' beliefs, Teachers' professional development, Teaching practices

## **I. INTRODUCTION**

Teachers' beliefs is an important area of research in teacher education. Since the late 1980s and early 1990s, influenced by important research findings in the field of education research, foreign scholars have been engaged in research on the beliefs of language teachers. With the increasing awareness of the complexity of educational and teaching work, the in-depth development of cognitive research and the shift of teaching research paradigm, the study of teachers in developed Western countries has shifted from the study of teachers' behavior to the study of teachers' thinking and decision-making process. Researchers have found that the concept of decision-making is too narrow to reflect the entire inner world of teachers, so teacher cognition research focuses on the knowledge and beliefs behind teachers' practice.

In response to the needs of teacher professional development and educational reform, Western research on teachers' beliefs pays more attention to the changes in the meaning of teachers' beliefs for individual, that is, the research on teacher belief changes. Therefore, current research on teachers' beliefs mainly focuses on the relationship between teachers' beliefs and teaching practice and the change of teachers' beliefs. This paper reviews from the following aspects: first, the definition of teachers' beliefs, second, the influencing factors of teachers' beliefs, third, the research on the relationship between teachers' beliefs and teaching practice, and fourth, the research on teachers' beliefs change and teacher professional development, so as to identify the research gap of teachers' beliefs research in China.

## II. RELATED RESEARCH

### 2.1 Definition, structure and type of teachers' beliefs

#### 2.1.1 Beliefs and their characteristics

Beliefs are considered to be the best indicator of how an individual makes a particular decision, and they influence how a person perceives and judges behavior. For teachers, these perceptions and judgements ultimately affect their specific teaching practice in the classroom, and beliefs have been studied by philosophers, social psychologists, and anthropologists from a variety of fields. Richardson's (2002) research suggested that the current basic understanding of what beliefs entail is as the mental understanding, premise, or proposition that people believe to be true. Psychologist Rokeach (1968) defined the concept of belief in terms of social psychology: belief is "a simple, conscious or subconscious assertion which is expressed through personal likes and dislikes, words and actions. Beliefs can be identified by the following approach: individuals generally preface their expressions of belief with the words 'I believe'". This definition associates beliefs with cognition and affect. He used the idea of an atom to compare the structure of beliefs. Similar to the nucleus of an atom that holds together different electrons into a stable structure, some beliefs serve as core beliefs and can organize other corresponding beliefs together to form a relatively stable belief system. Based on this definition, Rokeach classified three types of beliefs: descriptive belief, evaluative belief, and prescriptive belief. Barcelos (2000), citing Rokeach, a social psychologist whose interest in human behavior led him to understand the role of beliefs and attitudes in human actions, argued that core beliefs are related to emotions and to a person's identity, and he considered beliefs as a way of perceiving the world and it generates confidence to act on what is believed to be right, but may be questioned in the future. Moreover, it is through language that our realities are created and beliefs are constructed and expressed in discourse. Pehkonen (1998) stated that beliefs are stable subjective knowledge (containing emotions) of an individual about an object, and that beliefs are personal, self-directed, usually unconscious, have affective and evaluative dimensions, and are closely related to the body of knowledge. He argued that beliefs emphasize the dimension of personal emotion more than the term conception (conscious belief) and that the range of

one's beliefs is very large and the components influence each other. Eisenhart, Shrum, Harding & Cuthbert (1988) added an attitudinal component to his definition, arguing that beliefs (including affective factors) are description of a task, action, event or relationship between others and people's attitudes toward it. They thought that beliefs are part of an individual's subjective knowledge and that beliefs are in a constant state of change and evaluation, and when a new belief is adopted, it automatically becomes part of his or her subjective knowledge, that is, his or her belief system. In this way, an individual's beliefs are a combination of conscious and unconscious assumptions or expectations. Hamilton (2002) introduced the concept of culture to beliefs by arguing that the cultural perspective includes an understanding of what constitutes socialization in the world and that the belief perspective includes the cultural perspective that people must know how they interpret their experiences, which includes both personal beliefs and beliefs about what is shared by all. This includes individual beliefs and beliefs about shared customs, oral traditions, and artifacts. Taiwanese scholar Wang Gongzhi (2000) studied the definition of beliefs from the perspectives of sociology and psychology, assuming that from the perspective of psychology, beliefs are a psychological state that people feel or do not feel, and from the perspective of sociology, agreeing with Sigel (1985) that beliefs are an enduring attitude, values and ideology formed by people under the influence of cultural and economic factors of the society, which will be changed with the changes of the society. According to Yu Guoliang, and Xin Ziqiang (2000), beliefs can be understood as an individual's unwavering views about nature and society, such as theoretical views and ideological opinions. Once established, beliefs have a profound influence on people's psychology and behavior, and determine the direction, speed and effect of individual growth and development; at the same time, once a belief is shaken or disintegrated, it is the beginning of people's mental breakdown and behavioral deterioration. It can be seen that beliefs are of great importance to human life activities. Zhu Yuanyu, and Ye Yuzhu, et al. considered beliefs as personal mental filters that assist individuals in defining their environment, influencing people to accept and interpret information, and make choices and act accordingly, highlighting the filtering function of beliefs for

understanding, interpretation, decision making, and action (Lv Guoguang, 2004). Research by Wu Zhihui (2000) and Chen Xiangming(2003) demonstrated that beliefs are values that accumulate in the mental structure of teachers and are a priori assumptions that govern teachers' educational behaviors. According to Lin Yigang (2008), beliefs are personality tendencies that are convinced of the correctness of a certain viewpoint and govern one's actions, which tend to be stable and difficult to change even if facts to the contrary emerge.

Different understandings of beliefs can be seen in the above definitions: 1. Beliefs are personal psychological phenomena and are dynamic psychological structures. As from the definitions of beliefs by Richardson (2002), Pehkonen (1998), Eisenhart, Shrum, Harding & Cuthbert (1988), we can know that beliefs are the mental understanding, premise, or proposition that people believe to be true. It is a cognitive structure held by an individual and contains emotional and attitudinal components. In Furighetti & Pehkonen's (2002) definition, it can be seen that beliefs are a systematic composition, not only a static structure, but also a dynamic composition, and beliefs are in a constant state of change, consisting of both conscious and unconscious components. 2. Beliefs are sociocultural constructs. Wang Gongzhi defined beliefs from a sociological perspective, suggesting that beliefs are not only a personal construct but also include some shared sociocultural inheritance. Hamilton (2002) concluded that studying beliefs in a cultural context is necessary for understanding teachers' actions and choices in the classroom. Both of their definitions of beliefs focus on the formation of beliefs and social and cultural influences on individuals, viewing belief formation as a process influenced by social, cultural factors, and studying teachers' beliefs not only by focusing on individual teacher factors, but also by understanding the influence of social and cultural factors on beliefs.

Nespor (1987), through a study of eight teachers, analyzed four characteristics that beliefs have: 1. episodic storage: it shows that beliefs are opinions held by individuals, believed to be true, and can exist beyond personal knowledge. 2. alternativity: for different reasons, individuals try to create an ideal, alternative situation that is different from reality. Beliefs often represent the ideal real

world and entities that we want to choose. 3. affective and evaluative aspects: beliefs are more dependent on affective and evaluative aspects than knowledge, and they may elicit different affective responses under the right conditions, so that people, when faced with questions about the validity of their beliefs, take a positive or negative view of the matter related to beliefs. 4. episodic storage: teachers' personal experiences, information acquired during the teacher's learning and teaching career, for example, is stored as episodic fragments that influence his or her later teaching practice. These episodic memories are composed of personal experiences and events, and the key experiences that a person experiences or a particularly influential teacher produces episodic memories that are rich in detail, thus influencing his or her later beliefs about teaching as a teacher, that is, beliefs are stored in episodic fragments of personal experiences and events. Furighetti(1997) believed that beliefs are sometimes hidden and unconscious to the individual, and are often caused by discrepancies between the individual's declared beliefs and the beliefs in action, which may help us to analyze why there are inconsistencies between teachers' expressed beliefs and their classroom behavior.

Green (1971) proposed that individuals are constantly receiving signals from the world around them, and based on their perceptions and experiences based on this information, they draw conclusions about different phenomena and their nature. Their beliefs (including emotional factors) are a composite of these conclusions. In addition, he pointed out that individuals hold beliefs with three specific dimensions: quasi-logicalness, psychological centrality, and cluster structure. The first and second dimensions describe how individuals hold beliefs, nothing to do with the content of the beliefs. Beliefs vary from person to person and are difficult to agree on, so belief systems can hardly be considered logical; in other words, each person has his or her own logic in his or her own belief system. Belief systems consist of primary beliefs as well as derivative beliefs. Quasi-logicalness reflects individual thinking and values. For example, a teacher believes that it is important to "clearly" present the subject lesson, which is a fundamental belief, and to achieve this goal, the teacher believes that it is equally important to prepare the lesson carefully, ensure a clear and coherent presentation, and be

prepared to answer any questions asked by the students, which are all derived beliefs. The second dimension describes the belief that some beliefs in the belief system are more important to the individual than others, and that they are psychologically core beliefs to the individual, while others are peripheral beliefs. The central beliefs are the strongest beliefs, while the peripheral ones are the ones that are most easily changed or examined. Thus, beliefs have their own psychological intensity; the more central beliefs hold higher intensity and are less likely to be changed; conversely the more marginal beliefs are more likely to be changed. The third dimension refers to the fact that beliefs are aggregated in clusters that are more or less independent of other clusters and protected by other belief systems, and that clusters are not necessarily related to each other and may even be in conflict. This may explain inconsistencies in the core beliefs of an individual's belief system, such as a teacher who believes that "school should be a place where students are given every opportunity to excel," but who may also believe that "students who are not in gifted classes should not be recommended for higher level math courses". The teacher appears to have two incompatible beliefs, but there is no apparent contradiction for him because he may hold another belief in his belief system, "ability is fixed".

An analysis of the research on beliefs by domestic and international scholars reveals that understanding beliefs and the characteristics of belief systems helps us understand the relationships among the various beliefs held by teachers and the connections between teachers' beliefs and their teaching behaviors. Based on these characteristics of beliefs, this paper assumes that beliefs refer to claims and assumptions that individuals psychologically believe to be true and mainly include cognitive components. It is held by individuals and also socially and culturally constructed. Beliefs include both beliefs that individuals are aware of and beliefs that they are not aware of. The various beliefs make up the belief system, which is a quasi-logical, structure that exists according to psychological importance and the characteristics of clusters and is in a constant state of change. Thus, teachers' beliefs are both a static structure and a dynamic process.

### 2.1.2 Teachers' beliefs and their structure and types

Teacher beliefs are a part of the belief system and necessarily have the aforementioned belief characteristics.

Pajares (1992) stated that teachers' beliefs are the beliefs that teachers hold about teaching, the role of teachers, curriculum, students, learning, and other relevant factors in teaching situations and teaching process, which include teachers' perceptions, feelings, and evaluations of students, the learning process, the school's role in society, teachers themselves, and curriculum and teaching as they relate to teaching. He held the opinion that beliefs differ from knowledge in that knowledge is based on facts that are agreed upon by members of a particular field, whereas beliefs are more personal, and that beliefs are more emotional and contextual in nature, whereas knowledge has a value of truth or falsity. To some extent, teachers' beliefs influence teachers' practice and professional development more than teachers' knowledge. Kagan (1992) identified teachers' beliefs as a specific type of instigating individual knowledge. Richards (1998) noted that the essence of teacher beliefs is "the information, attitudes, values, expectations, theories, and assumptions about teaching and learning that teachers accumulate over time and implement in the classroom". It is a coherent and personally meaningful structure of past experience, teaching practice, teacher personality, educational theory, and other factors. It is elevated to a personal educational value through the individual's teaching behavior, which in turn is embedded in all aspects of the educational process. Borg (2003), on the other hand, suggested that teachers' beliefs are self-perceived notions held consciously or unconsciously by teachers in the field of teaching and learning, usually including teachers' perceptions of classroom teaching, language, language learning, learners, teachers' roles, curriculum reform, and teacher professionalism, while recognizing that other teachers may hold different perceptions of the same issue. Such perceptions form an interconnected system that guides teachers' thinking and behavior. Poter and Freeman believed that teacher beliefs are defined in terms of instructional orientation, which is a teacher's view of educational practice, students, learning, teaching, curriculum, and the teaching environment (Jin Aidong & Ma Yunpeng, 2013). Schmidt and Kennedy's study showed that experienced teachers have highly heterogeneous beliefs and theories about teaching and learning. If these teachers' beliefs are divided according to academic theory, they may correspond to distinct theoretical

schools at the same time. For example, a teacher may use both humanistic and scientific theories of teaching and learning in explaining the teaching behavior of a lesson (Dong Qi & Dong Beifei, 2021). Thus, it can be seen that teachers' beliefs are not a fixed and a priori system, but rather a combination of multiple conceptions that are formed gradually in teachers' lives and teaching contexts, influence their teaching practices, and change through reflection in teaching contexts.

Domestic educational scholars have defined the connotation of teachers' beliefs in a variety of ways, such as "educational beliefs," "teachers' beliefs," "teaching beliefs," and so on. "Most researchers do not focus on the distinction between beliefs and concepts, and more often than not, they use the two together or consider concepts to include beliefs (Xie Yi, 2006). From the literature cited by most scholars, "belief" is usually translated as "concept". For example, Gao Xiaoyi and Pang Lijuan (2003) translated "ideological education beliefs" as "ideal educational concepts", and Yu Guoliang and Xin Ziqiang (2000) argued that teachers' beliefs refer to teachers' judgments about certain theories and concepts about teaching and learning phenomena. Therefore, in this study, no distinction is made. According to Xie Yi and Ma Yunpeng, teacher belief is one of the important concepts in the field of teacher education research. It refers not only to teachers' beliefs about teaching and learning, but mainly to teachers' beliefs about the overall activities of education, which are accumulated and developed from their student days and believed by them, organized by the principles of personal logic and psychological importance ("core-peripheral") information base, which is a frame of reference for teachers' educational practice activities (Huang Min & Francis Bond, 2018). Qin Chengqiang (2007) concluded through classroom observations that both individual teachers and groups show a great deal of diversity in the basic teaching principles they believe in and the teaching practices they choose. According to Zhao Changmu (2004), teachers' beliefs are the ideas, perspectives, and assumptions about people, nature, society, and educational science that teachers themselves identify and believe in, and they are their internal state of mind, profound dimensions of existence, and inner guides for carrying out teaching activities. Whether or not individual teachers are aware of their beliefs, teachers always carry

beliefs with them in their educational activities. Teachers' beliefs influence teachers' thinking, decision making, behavior, and self-professional development, as well as the quality of students' self-beliefs and development. According to Wang Huixia(2008), teachers' beliefs are their subjective perceptions of relevant educational phenomena, especially their own profession, their teaching abilities and the students they teach, which influence their educational practices and students' physical and mental development.

From the above representative views, it can be seen that the consistency in the understanding of teachers' beliefs among domestic and foreign scholars lies in the affirmation that teachers' beliefs refer to their subjective perceptions and judgments about education and education-related practical and theoretical issues, while the difference lies in the division of the scope of these subjective perceptions and judgments. There are three different perceptions: teachers' beliefs should cover teachers' beliefs about human beings, nature, society, and educational science; teachers' beliefs refer to teachers' beliefs about education as a whole; and teachers' beliefs refer to teachers' beliefs about teaching and learning activities. The differences in the researchers' determination of the scope involved in teachers' beliefs reveal their different perceptions of the content of beliefs that influence teachers' professional behaviors. Researchers who consider the content of teachers' beliefs to be broader in scope consider teachers as a whole subject of life and believe that their overall beliefs affect their educational and teaching activities; those who consider the content of teachers' beliefs to be narrower in scope consider teachers as a specialized professional and focus on the effects of their perceptions and judgments on specific issues of educational and teaching activities. The former is characterized by a holistic and dynamic understanding of the research object, which is conducive to grasping the root causes of teachers' belief formation from multiple perspectives, such as background and influencing factors, while the latter is relatively static and direct, which is more conducive to revealing the specific problems of teachers' beliefs in a static state and is more conducive to observe and easy to grasp (Ma Ying, 2012).

Based on the above analysis, regardless of the definition, teachers are directly confronted with teaching, therefore, this paper concludes that teachers' beliefs are the opinions,

attitudes, and psychological tendencies that teachers hold in certain historical and cultural contexts and teaching process regarding factors related to teaching and learning, which are stored in clusters as a repository of personal information base in the form of episodes that contain personal experiences or events, teachers' varying degrees of certainty about education, the absence of shared assumptions and ideals, and a combination of cognitive, affective, evaluative, and action components. These views, attitudes, and psychological dispositions constitute a series of interrelated and mutually supportive value judgment systems that can indirectly and directly govern teachers' educational and pedagogical behavior.

Based on this foundation, teacher education researchers have refined the structure of teacher beliefs. More typically, Calderhead categorizes teacher beliefs into five components: beliefs about learners and learning, beliefs about teaching, beliefs about the discipline, beliefs about teacher learning, and beliefs about self and the teaching role. He believed that these components do not exist in isolation, but are integrated and influence each other, and together they form a teacher's belief system that guides teachers' professional development and classroom practice (Zhang Fengjuan & Liu Yongbing, 2011). William Willen et al. divided teacher belief systems into intuitive components and rational components. The intuitive component includes experiences, traditions, and personal needs, while the rational component includes scientific teaching theories and validated practices (Ma Ying, 2012). This classification provides an important way of thinking about what constitutes teachers' beliefs. Although the specific beliefs held by individuals are highly personal and illogical, and thus no uniform structural division of the content of specific beliefs of teachers in reality can be made, there can be a structural division of the rational beliefs of ideal teachers in the sense of cultivation goals, which can provide a standard reference for specific teachers' belief search as well as a clear goal for teacher belief education. Richard and Lockhart (2000) identified teacher beliefs as teachers' pedagogical beliefs, or those related to individual teaching, and proposed five major domains of teacher beliefs based primarily on subject matter teaching: (1) beliefs about English; (2) beliefs about learning; (3) beliefs about teaching; (4) beliefs about the curriculum or teaching

program; and (5) beliefs about ELT as a profession (Kong Wei, 2016). Zheng Xinmin and Jiang Qunying used a semi-structured personal interview method for three university English teachers to extract seven categories of foreign language teachers' beliefs, such as language theory, language teaching, curriculum, teaching-focused beliefs, teacher-student roles, classroom activities, and teaching resource applications (Dou Yan, 2015). Gao Xiaoyi and Pang Lijuan (2003) divided teachers' beliefs into four levels: first, ideological educational beliefs, which are educational beliefs proposed by some educational institutions, academic groups and educational experts; second, formal educational beliefs, which are educational beliefs prescribed by the educational administration; the third one is perceived educational beliefs. Different teachers may interpret the same formal educational concepts differently, and thus they have different perceived educational beliefs; the fourth one is operational educational beliefs, which is the educational concepts actually implemented in educational practice. Li Zhaocun (2002) argued that there are three different forms of educational concepts: first, theoretical educational concepts, second, institutional educational concepts, and third, socio-psychological educational concepts. Whether it is Gao Xiaoyi's and Pang Lijuan's four points or Li Zhaocun's three points, it is the operational and psycho-social conceptions of education that have a direct effect on educational behavior, and they are of great importance to the successful implementation of educational activities.

To better understand teacher beliefs, teacher education researchers have delved into the types of teacher beliefs. In the field of educational research, it is customary to classify teachers' beliefs into two orientations. The first is called positivist, traditional, transmission, or subject-centered, and although the terms are different, they convey similar meanings. Broadly speaking, this orientation assumes that the purpose of learning is to acquire knowledge, and that for teacher, the best way to teach science is to transmit knowledge to the student. Thus, the teacher is the transmitter of knowledge and the student is the passive recipient, and science provides the correct answers and represents the truth. The second is called the "constructivist" or "learner-centered" orientation, which holds, broadly speaking, that the purpose of learning is to construct one's own understanding. For teacher, the best way to teach

science is to help students construct their own knowledge; teachers are instructors and facilitators while students are active constructors of knowledge. Scientific knowledge is tentative and developmental; and scientific inventions are made within a research paradigm negotiated by scientists. This orientation was gradually promoted after the Western curriculum reform in the 1980s and is the dominant orientation in science education today. Other research suggests that some teachers hold a middle-of-the-road stance, giving some credit to both orientations, and that their beliefs are a blend of the two orientations, which scholars have called “mixed” or “hybrid” (Zhang Fengjuan & Liu Yongbing, 2011).

## 2.2 Current status of research on teachers’ beliefs at home and abroad

### 2.2.1 Empirical study of teachers’ beliefs

In the 1970s, the focus of research in teacher education shifted from the original attempts to exhaustively analyze teachers’ external behaviors to exploring the internal psychological dimensions and cognitive process of teachers in their teaching career. Because of the complexity and importance of the issue itself, researchers have mainly obtained the relevant data of teachers’ beliefs by observation of teachers’ behavior, observation of teaching environments, simulated recall, questionnaires, interviews, and content analysis of journal texts to study the relationship between teachers’ beliefs and teachers’ behavior. By understanding and evaluating the commonalities and differences among teachers, then compare and study the relationship between individual internal characteristics and teachers’ behavior or teaching performance. Empirical research is not only a “quantitative” research method, but also places special emphasis on theoretical support and generalization, and on understanding educational issues from a broad cultural context and exploring the deeper educational mechanisms, rather than on facts and figures.

An overview of empirical research on teacher beliefs at home and abroad can summarize the theoretical perspectives of researchers into two types: trait theory and ecocultural theory. Trait-theoretic teacher belief research views teacher beliefs as constant and individualized elements, maintaining that the structure of teacher beliefs is stable and that established teacher beliefs lead to specific

classroom teaching behaviors so that teacher behaviors can be successfully predicted through teacher beliefs. Generally, they use experimental or quasi-experimental research to provide teacher education with a variety of teacher beliefs, attitudes, and expectations that can predict teaching behaviors. Five & Buehl summarized four dimensions of teachers’ beliefs about teaching by interviewing 53 pre-service teachers and 57 in-service teachers: beliefs about imparting knowledge, beliefs about teaching competence, beliefs about teachers’ cognitive skills, and beliefs about teachers’ emotions. They designed a questionnaire to investigate 351 pre-service teachers’ beliefs about teaching and found that pre-service teachers who believed that “teachers are born with the ability to teach” were not comfortable with theoretical knowledge provided by teacher education training and were more likely to adopt fragmented teaching skills without considering the theoretical support behind those skills (Zheng Xinmin & Jiang Qunying, 2005).

The cultural-ecological theory of teacher beliefs situates teachers’ beliefs in the immediate social context in which they are located (classroom, school, family, state, and society, etc.), arguing that teachers’ beliefs and teaching behaviors are not in a causal relationship, but in an interactive relationship of mutual influence. That is, teachers’ beliefs emerge from their teaching practice and the environment in which they live, are subject to the values and culture of their environment, and influence and guide their practice, while conversely, teachers’ reflections and experiences accumulated through their teaching practice can change their existing beliefs. Bussis, Chittenden, and Amare found that teachers’ beliefs about curriculum and students were constructed from their personal understanding of their surroundings and guided teaching behaviors and they also found that teachers’ beliefs could be changed when they were committed to “exploring, experimenting, and reflecting” (Jin Aidong & Ma Yunpeng, 2013). In a study by Pajares (1992), it was found that when trainee teachers begin to teach in real classrooms, they generally teach from a mental modeling of the classroom. This modeling comes primarily from sociocultural and personal learning experience. Thus, the formation of teachers’ beliefs about teaching can be traced back to individuals’ pre-existing experiences of being taught and

images of education during the socialization process, which naturally leads to a personal view of education, teaching, learning and teacher-student roles related to educational issues. Lee and Dallman (2008) used an ecocultural theory framework to study pre-service teachers' beliefs about multicultural teaching and found that teachers' beliefs about multicultural education were rooted in their personal past life experiences through in-depth interviews. Formed through interactions with the surrounding environment and individuals, these beliefs can change through interactions with students from multicultural backgrounds and reflective teaching practices. It is also recommended that teacher education training programs offer a variety of teaching internships and apprenticeships that interact with students from diverse cultural backgrounds whenever possible. By reflecting on these multicultural "encounters", teachers' previous perceptions of multicultural education and stereotypes of students from different cultural backgrounds can be changed. Borg (2003) believed that teaching experiences are an important source of beliefs for teachers, and that teachers will continue to revise and add to their existing beliefs and adjusting their belief systems by reflecting on their practice. To a certain extent, the teaching process is a process of reconciling teachers' beliefs with various environmental factors.

### 2.2.2 Study of the factors influencing teachers' beliefs

#### 2.2.2.1 Study of the factors that shape teachers' beliefs

The factors related to the formation of teachers' beliefs have received great attention from scholars both at home and abroad. Research has found that the sources of teachers' beliefs include two main aspects: personal experience and social construction. Pajares (1992) proposed two origins of teachers' beliefs—emotionally loaded experiences and cultural transmission. Richardson (2002), on the other hand, argued that there are three main sources of teachers' beliefs and attitudes: personal experience, schooling and experiences of teaching and learning, and experiences of formal knowledge (including school subjects and pedagogical knowledge). Both of these scholars' views are echoed. Xin Tao and Shen Jiliang (1999) also pointed out that there are two sources of teacher education beliefs: self-construction, which arises from direct personal experience and each person has a different "personal construction process"; and cultural script, which means that teacher

education is formed through three cultural transmission pathways: acculturation, education, and schooling. Freeman proposed that teacher beliefs are composed of a variety of complex factors, including the subculture of the discipline, teachers' learning and life experiences, teaching experiences, professional education experiences, pedagogical knowledge, and colleagues' interactions that lead to self-reflection (Zheng Xinmin & Jiang Qunying, 2005). Borg (2003) suggested that teachers' initial beliefs about second language acquisition are largely based on their own experiences as learners. Similarly, the apprenticeship of observation proposed by the American scholar Lortie (2003) provides insight into the influence of prior learning experiences on teachers' cognitive structures. Effective teacher education models also play an important role in shaping teachers' beliefs, and constructivist and sociocultural theories have been widely applied to this research in recent years (Zhang Fengjuan & Liu Yongbing, 2011). Skamp, on the other hand, explored the changing perceptions of effective science teaching among 12 Canadian pre-service science teachers through a tracking study in which the researcher interviewed these pre-service teachers at different times in their development. The study found that prior to participating in the internship, these pre-service teachers' perceptions of effective science teaching came primarily from their undergraduate studies, but after the internship, their perceptions coincidentally changed. Accordingly, Skamp concluded that teachers' teaching experiences can have a more important impact on the formation of teaching beliefs (Chen Bo & Wei Bing, 2012). In addition, teachers' work environments, such as classrooms, schools, and teacher communities, have a strong impact on teachers' beliefs and are the best places for teachers to grow (Jiang Yong, 2005). By conducting a questionnaire study on the intrinsic influences of teachers' beliefs, Lv Guoguang (2004) showed that teachers' job engagement, job satisfaction, critical thinking tendencies, reflective intelligence, and teacher' self-efficacy play an important mediating role in teachers' beliefs.

In conclusion, teachers' educational beliefs should be viewed as a result of the interaction of individual constructs and cultural information, and as a product of socio-historical culture. It is a trend in teacher belief research to analyze the educational conceptions of groups and individuals in



research and to further explore how individuals integrate information from different sources.

#### 2.2.2.2 Study of the factors that change teachers' beliefs

As the exploration of teacher changes entered the 20th century, teacher beliefs were the focus of researchers' attention. Borg (2011), Yuan & Lee (2014) found that teacher training programs positively influenced teachers' beliefs, although there were differences in the manner and aspects of the influence (Xiang Maoying, Zheng Xinmin & Wu Yiping, 2016). Similarly, Bou-Jaoude compared the changes in pre-service teachers' views of teaching before and after the training program and found that the training program had a positive effect on teachers' beliefs change. Before the program, 75% and 3% of pre-service teachers held transfer and constructive orientations of teaching and learning, respectively, and after the training, the percentage of transfer-oriented pre-service teachers decreased to 34%, while the percentage of constructive-oriented pre-service teachers increased to 50%. A similar conclusion was reached in Luft's study, where an inquiry-based professional development program helped novice teachers shift their beliefs about teaching and learning, but it is worth noting that experienced teachers changed only at the practice level after training, and belief shifts did not occur (Chen Bo & Wei Bing, 2012). Zhang & Liu (2014) conducted a study with 733 middle school English teachers and found that curriculum reform, testing, and traditional cultural attitudes all influenced changes in teachers' beliefs (Xiang Maoying et al., 2016). Qiu Qing (2021) et al. explored 142 pre-service English teachers' belief changes before and after their internships through a combination of quantitative and qualitative research, which found that prior beliefs and self-reflection, supervisors during the internship, students, colleagues, and school climate were all factors that influenced teachers' belief changes during the internship. Xie Yi (2006) synthesized various teacher belief change studies and concluded that there were five factors that influenced teacher belief change: belief intensity, school culture, school colleagues, prior beliefs and cognitive base, and emotion is an important basis for beliefs.

The above research on teacher belief change is very important for us to reflect on the existing teacher education procedures and methods and to consider how to use practice and its resultant reflections to guide teachers to form correct

beliefs.

#### 2.2.3 Study of the teachers' beliefs and teaching practices

Teachers' beliefs play a critical role in their professional growth. Few people doubt the idea that teachers' beliefs influence their perceptions and judgments, which in turn influence their classrooms (Zhao Changmu, 2004). Understanding teachers' beliefs is therefore an important task for improving teaching practice and teacher education. Many studies have shown that teachers' beliefs about teaching influence their teaching behaviors and are the most effective predictors of teachers' teaching behaviors and effectiveness (Lou Heying & Liao Fei, 2005). As Spodek argued, "When teachers engage in teaching activities, they process the information they gather, and they consider the implications of this information in relation to the educational concepts and values they have accumulated. Thus, teachers' behavior and classroom decisions are governed by their perceptions" (Gao Xiaoyi & Pang Lijuan, 2003). According to Pajares (1992), "Once an idea is formed, the individual has an orientation to build a causal explanation around aspects of the idea, whether these explanations are correct or just a fiction, and eventually it becomes a self-fulfilling prophecy - the idea influences cognition, cognition influences behavior, and behavior is consistent with the original idea and reinforces the original idea. Ottenbreit concluded from an analysis of data from eight teachers that teachers are more likely to incorporate emerging technologies into their teaching practices if they perceive them to be valuable. Martinez's survey showed that teachers' positive attitudes toward teaching promote their teaching practices and effectiveness in the classroom (Dong Qi & Dong Beifei, 2021). Pang Lijuan, and Ye Zi pointed out that teacher beliefs and educational behaviors are connected and influence each other, rather than a simple this-determines-the-other relationship (Wang Huixia, 2008). Also, Lin's research showed that teacher beliefs and teacher behaviors promote maximum teaching effectiveness when they are aligned (Huang Min & Francis Bond, 2018). However, teacher beliefs and teacher practices are not always aligned. Bryan (2003) observed the classroom teaching of a science teacher non-participantly, and found an inconsistency between teacher's beliefs and teacher's practices: while Barbara held a constructivist view of science and believed that scientific concepts were symbiotic

with the process of scientific inquiry, but was more pedagogically oriented to the lecture format, believing that the teacher is the center of instruction and holds the “right answer”. In a study of 12 college English teachers using several measurement instruments and classroom observations, Lou Heying and Liao Fei (2005) found that, in general, teachers’ beliefs were closely related to their teaching behaviors, but they also found that sometimes their beliefs were not consistent with their teaching behaviors, and all seven teachers encountered situations in which their teaching beliefs and teaching plans were not implemented in the actual classroom as expected. Qin Chengqiang (2007) demonstrated the contradiction between teachers’ beliefs and students’ actual situation, classroom teaching practices, socio-political environment, and students’ beliefs, and clarified the variability of teachers’ beliefs.

Based on the above analysis, it can be concluded that teachers’ teaching beliefs and teaching behaviors influence each other, and that teachers’ beliefs and other external environmental factors jointly influence teaching behaviors. The inconsistency between teachers’ beliefs and teaching behaviors leads us to explore the internal teacher beliefs that directly act behind teachers’ teaching behaviors. Despite their complexity and implicit nature, beliefs still reflect teachers’ expectations as well as their values and are the basis for teachers’ behavior, purposes, perceptions, interpretations of a particular classroom situation, and the actions teachers take in response to that situation.

#### 2.2.4 Study of the teachers’ beliefs and teachers’ professional development

Kagan (1992) stated that teachers’ beliefs are the best measure of teachers’ professional growth. Many researchers view teacher beliefs as an important influence on teacher professional development and identity construction (identity). “Teacher beliefs serve three main roles as filters, frames, or guides, such as filtering and interpreting new information, developing lesson plans, etc., and guiding action in the present moment.” (Buehl, 2015). Morrisson C. (2015), through a follow-up study of 14 beginning teachers in Australia, found that there were three types of situations of identity for beginning teachers: emergent, distressed, and vulnerable. “Emergent” refers to teachers who are new to the profession. Their personal and professional beliefs are not in major conflict, and they hold positive and optimistic

attitudes about their abilities and teaching horizons. “Distressed” refers to teachers whose professional and personal beliefs are in great tension. They lack confidence in their daily behavior, and they need encouragement from others. “Vulnerable” refers to teachers who fluctuate between “emergent” and “painful”. “If teachers do not have adequate coping strategies and external professional support to overcome these tensions, it may lead to a professional crisis” (Dong Qi & Dong Beifei, 2021). Therefore, on the one hand, teacher educators should consider the identity perceptions, emotions, career stages, and life contexts behind teachers’ beliefs when designing and implementing lessons, which can have an impact on practice activities through teachers’ beliefs. Specific strategies include “creating a richer and more diverse cultural environment that forces teachers to reevaluate and reflect on their existing beliefs, attitudes, and knowledge; sharing and discussing teaching practices or teaching examples with peers; and stimulating belief conflicts that provoke discussions, comparisons, tests, and challenges to clarify their values.” On the other hand, teachers need to take the initiative to transform their personal emotionally biased beliefs about teaching and learning into scientific professional beliefs about education and learn to perceive and act as teachers (Lamote & Engels, 2010). It has long been assumed in teacher professional growth that changes in teachers’ beliefs and attitudes will lead to changes in their classroom behaviors and practices, which in turn will lead to improvements in student learning, and that changes in these psychological processes are a prerequisite for teachers to change their behaviors. However, Clarke and Hollingsworth (2002) propose a new model of the teacher change process which argues that teacher change is influenced by four domains: individual, external, practice, and outcome, which are linked together through teacher creation and reflection to form a complex system of teacher change. The model, in which the individual and organizational levels of teacher professional development interact with the context of change and the external environment as a systemic process, emphasizes the relationship between the organizational culture of the school and teacher development, and thus clarifies the relationship between individual teacher development and group and school development.

### III. CONCLUSION

Teachers' beliefs are an important area of teacher and teaching research in foreign countries, and research on teachers' beliefs abroad has yielded fruitful results and provided us with many research paradigms to draw on. The focus of foreign scholars on teachers' beliefs was first directly driven by curriculum reform, and teachers' beliefs have become the key to whether curriculum reform can be implemented into practice. Teacher belief research shows that the direction of teacher education has changed from the formation of behaviors to the reshaping of teachers through beliefs to produce teachers who are suitable for the needs of the times. Teachers' beliefs are deeply influenced by the immediate social environment in which they are located. Beliefs and teaching behaviors are not causally linked but rather interactively related. Research has shown that teachers' beliefs can indeed be changed through curriculum design during the pre-service teacher training and in-service teacher training phases.

Research on teachers' beliefs in China, on the other hand, has emerged in response to the concern for teachers' professional development. As one of the factors of teachers' professional quality, teachers' beliefs have attracted theoretical research interests, especially the implementation of the new round of curriculum reform, which has made scholars in China pay more and more attention to how to change teachers' beliefs. According to the collected literature, scholars in China mainly study teachers' beliefs from theoretical or empirical perspectives by drawing on relevant foreign theoretical research results. Throughout the research on teachers' beliefs in China, there are still a large number of potential research topics:

First, expand the research objects. Conduct research on the beliefs of pre-service teachers, novice teachers, and excellent teachers, and gain insight into the characteristics and developmental patterns of beliefs of teachers at different stages of career development or different types of teachers.

Second, emphasis should be placed on the use of qualitative research methods. Although the research methods of foreign language teachers in China have shown diversified characteristics in recent years, quantitative research is still strong (Xiang Maoying et al., 2016). Teachers' belief research needs to capture the invisible and

intangible cognitive content, structure and change processes, and should further strengthen the use of qualitative research methods and enrich the means of data collection.

Third, dynamic studies of teachers' beliefs should be conducted. As teachers' teaching experiences are accumulating and their self-reflective abilities are increasing, the need for dynamic research on teachers' beliefs based on the development of changes in experiences and abilities is highlighted. By tracking and recording teachers' growth trajectories, dynamic research can help outline key events in the process of teachers' professional growth and explain the general patterns of teachers' belief development.

Fourth, research on teacher beliefs and teacher professional development should be strengthened. In traditional teacher education, teachers' existing beliefs are rarely "shaken" and they tend to stick to their own cognitive schemas and behaviors, which in part leads to ineffective teacher education. Therefore, understanding teachers' beliefs about issues related to teaching and learning should be an important starting point for teacher development.

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