A Case Study on High School English Teachers' Adaptation Strategies to New Textbooks

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Abstract: Teachers adapting to new textbooks involves dynamic interaction between teachers and materials, which will facilitate professional development. This study relies on in-depth interviews, complemented by WeChat chat records and student feedback, using Activity Theory as the analytical framework and conducts versus coding analysis. Four-level contradictions during the "new textbook adaptation period" are identified. Two paths for adjusting to new books and achieving professional development are summarized.

Keywords: High School EFL Teachers, New Textbook, Adaptation, Teachers' Professional Developments.

1. Introduction

Textbooks are a vital resource and carrier to implement the curriculum objectives and fulfill the fundamental task of cultivating students' core competencies, ranging from language ability, to thinking quality, to learning strategy, to cultural awareness. Therefore, the national authorities have been attaching great importance to the compilation and revision of teaching materials. For example, The High School English Curriculum Standards (2017 Edition, 2020 Revision) clearly gives seven principles for the compilation of high school English textbooks; The Management Policies for Primary and Secondary School Teaching Materials issued by the Ministry of Education in 2019 regulates the basic guidelines for the revision and management of teaching materials.

As a result, the leading publishing houses have been actively revising senior high school English textbooks in accordance with the new Curriculum Standards. By 2021, six sets of English textbooks from different presses for senior high schools have been approved by the National Textbook Commission, and will be officially put into use in front-line teaching in the autumn of 2022. Therefore, teachers enter the "adjusting period" of the new textbooks with the concept of "using textbooks instead of teaching textbooks".

Through the review of existing papers, it is found that scarce of them are based on the empirical researches on in-service teachers (instead of teacher educators) and also there is a lack of qualitative researches. Hence, this paper employs the qualitative method to look into the story of an frontline in-service teacher's experience of adapting to new textbooks.

2. Literature Review

"use" and "adapt"

Views on textbooks shape how a teacher uses textbooks (Cunningsworth, 1995; Graves, 2019). Therefore, there has been a long-lasting debate over "teaching textbooks" and "using textbooks to teach". In the past, teachers were nothing but the "passive presenters" of the teaching material (Richards, 1998), rigidly following the "authoritative" teaching suggestions from the textbooks as if they are the Bible.

However, in the 21st century, with the growing recognition of teachers' empowerment, comes the increasing consensus that teachers should be empowered and able to create, to re-arrange and to integrate the teaching materials according to the actual needs. Therefore, the meaning of "use" evolves from loyalty obeying the contents of the textbooks to dynamically "transcend" the teaching materials in a way that embodies the new Curriculum Standards.

However, teaching is a dynamic and complex process that keeps changing and evolving. Before teachers are able to skillfully "use" textbooks, there existing some stages where the teachers make efforts to transfer the theoretical knowledge to practical knowledge, form the inherent teaching strategies and finally achieve a balance between all the teaching factors. And those stages are the so-call "adaptation" periods. Therefore, adaptation to new textbooks refers to teachers' adjusting their teaching belief, teaching methods, evaluation and so on to optimize the effective of the new textbooks.

Studies on textbooks

From the perspective of content, the existing literature tends to focus on the analysis and evaluation of the textual entity. Some are from overall perspective, ranging from the analysis of the relationship between the new textbook and the new Curriculum Standard, to the panoramic comparison of the new and old textbooks; Others focus on a certain aspect, such as cultural representation the value of ideological and political education, and interdisciplinary. Only a few studies look into the generative and interactive nature of textbooks, emphasizing the natural connection and interaction between the new textbook and other factors in teaching, especially the autonomy of teachers in the use of textbooks, such as the strategy of textbook use, the contributions to students' learning, the teachers' view of textbooks, and the contributions to teachers' development.

The majority of the existing literature is prescriptive, conducted by the "expert" teacher educators who carry out theoretical analysis and offer authoritative suggestions from the perspective of "should be". Only few studies are based on the empirical orientation, from the perspective of the actual users of the new textbook (in-service teachers), to objectively describe their individual practical strategies and emotional changes in the "adjusting period" of the new textbook use.
Besides, few related empirical studies are mostly quantitative ones, which record the "group image" of the multiple interactions between teachers and textbooks, and thus lack in-depth and focused qualitative description.

In view of this, in order to make up for the existing research gap, this study adopts the case study method to trace back the reflective practice of a skilled teacher in the "exploration period" of the use of new textbooks, and to extract the new textbook adaptation strategies of high school English teachers with promotion value.

**Activity Theory**

The theoretical framework of this study is Activity Theory (AT), which is increasingly used in educational researches as an analytical tool for it can comprehensively sort out the complex interactional system of teaching (Hashim & Jones, 2007).

AT emerges from Vygotskian sociocultural theory (Leon'tev, 1981), which has gone through several expansions. The first generation of AT was based on Vygotsky's idea of mediation (Vygotsky, 1978), proposing that there is a mediating tool between the subject and the object. The second generation was proposed by Leon'tev, enriching AT by introducing the hierarchical system of activity: activity, action and operation (Leon'tev, 1981). The third generation of AT further systemized the theory with a triangular framework (Engeström, 1989) that shows a specific sociocultural picture with all the six integrated elements of an activity:

![Figure 1: AT triangular framework](image)

In essence, AT is designed to describe the purposeful actions of an individual or a group and how these actions are connected interactively and dynamically within the environment they occur (Seiradakis, 2019).

**Contradictions through the lens of AT**

Engeström (1989) pioneeringly applied the third generation of AT to teachers' development studies, proposing that teachers' development is spurred by the contradictions within the activity system, because contradiction is an important force to promote teachers' progressive learning. And contradictions, are the structural tensions between the elements of one activity or between activities, which, from inside to outside, have four levels (Engeström, 1989; Marwan & Sweeney, 2019):

1) The primary contradictions are hidden inside one certain element of the activity, arising from the duality of one element;

2) The secondary contradictions are between elements and elements;

3) The tertiary contradictions are between the old activity model and the new advanced activity model;

4) The quaternary contradictions are between the central activity and other proximity activities.

According to AT, it is the contradictions at different levels that promote the occurrence of teachers' learning, and make teachers' knowledge and beliefs constantly reconstructed, reflected and solidified, all of which will lead to teachers' development (Wei, 2019; Lu & Zhang, 2021). And it is because the adaptation of new textbooks is also a part of teachers' professional development, that the AT is highly suitable for this study as an analytical tool.

**3. Research Methodology**

**3.1 Participants**

This study adopts purposeful sampling and convenience sampling, that is, according to the purpose of the study, to select the most approachable participants that can provide the maximum amount of information for the research question. Nathan (pseudonym) is a proficient senior high school English teacher (Berliner, 2003), working in a prestigious high school and having won many honors in national teaching competitions. Nathan is selected as the research object in this study for three reasons:

1) He has strong ability to integrate and innovate teaching material resources thanks to his experience in teaching competitions, and thus his story is of strong promotion value;

2) I did my three-month internship in Nathan's school. Due to frequent interactions, I built up a good rapport with him, so he will feel free to share his personal experience more candidly in the interview, which can ensure the authenticity of the data to a certain extent;

3) The new textbook that Nathan is using has won the first National Special Prize for Textbook Construction, which reflects the highest level of basic English education textbooks in China and thus is of high representativeness and researching value.

**3.2 Research Questions**

Considering both the unbalanced seesaw of the previous studies on the new EFL textbooks for high schools in China and the urgent need for adaptation strategies of new textbook, more descriptive studies on the interaction between the new textbooks and the high-school-based EFL teachers during the "textbook-adjusting period" are needed, especially conducted in the qualitative methods. Therefore, informed by the existing literature and our own experience, the following three questions are proposed:

1) What are the contradictions the teacher surveyed confronted in the process of adaptation?

2) How did the teacher surveyed tackle those contradictions to realize adaptation?
3.3 Data Collection

First of all, the participant was asked to divide the process of his adapting to the new textbook into X stages, and then X rounds of semi-structured in-depth interviews were carried out, with the purpose of reducing the recalling pressure of the participant so that he can provide sufficient, in-depth and detailed data. Finally, three rounds of interviews were conducted in Chinese (participant’s mother tongue) and online due to COVID-19 and each of them lasted 35 to 50 minutes.

At the same time, the participant was also asked to provide some physical materials generated during the adaptation period of the new textbook, such as after-class reflection, teaching design, WeChat records with colleagues, etc. In addition, the researcher also distributed questionnaires to the classes taught by the participant in a small scale to investigate the students' satisfaction with the teachers' teaching, add a quantitative perspective to the research. The interview data, the physical materials and the quantitative questionnaire data join together to triangulate the data and ensure the reliability of the study.

3.4 Data Analysis

The interview data was transcribed automatically using Tencent Meeting and the researcher read the transcripts and verified the accuracy of the information according to the recordings.

The researcher then applied a selective reading approach (Van Manen, 1990). Firstly, the researcher carefully read through all the data to get a general picture of the participant's experience and then highlighted the key events that contribute to the participant's adapting to the new textbooks. And next, the researcher tried to find evidence in a variety of physical materials to achieve mutual verification (Miles & Huberman, 1994). After key events were determined, a qualitative, inductive coding approach (Glaser, 1978; Strauss & Corbin, 1990) was adopted for the coding purpose.

Early drafts of the study were sent to the participant for member checking (Lincoln & Guba, 1985) and revisions were made based on their feedback to guarantee the trustworthiness of the interpretation and analysis.

4. Findings and Discussion

Teacher development is a dynamic process driven by internal contradictions of an activity, and so is the adaptation of new textbooks. Figure 2 shows the system of the participant's adaptation activity. Table 1 summarizes the contradictions that the participant has encountered and actions he has taken.

![Figure 2: The system of the participant's adaptation activity](image)

Table 1: The contradictions that the participant has encountered and actions

<table>
<thead>
<tr>
<th>Level of contradictions</th>
<th>Contents of contradictions</th>
<th>Actions/Resolutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>Inside one certain element: The new requirements imposed by the new textbooks on teachers and the concerns of teachers about innovative teaching</td>
<td>Inspired by the teachers' training, he updated his view of textbooks and began to view textbooks as an assistant instead of the Bible.</td>
</tr>
<tr>
<td>Secondary</td>
<td>Between elements: Individual attempt to seek for teaching innovations and the conservative tendency of the community</td>
<td>After winning trust among the community by helping his colleagues prepare for the open classes, he guides the community to conduct overall unit teaching design</td>
</tr>
<tr>
<td>Tertiary</td>
<td>Between the old activity and the advanced one: Student's fixed English learning habits and teacher's advanced EFL teaching philosophy</td>
<td>Conduct action researches to achieve the use of new textbooks that integrates teaching, learning and assessing.</td>
</tr>
<tr>
<td>Quaternary</td>
<td>Between the activities: Adjusting the new textbooks and researching activities in favor of the professional title evaluation</td>
<td>Transfer the experience in new textbook teaching to the academic product through lesson studies.</td>
</tr>
</tbody>
</table>

4.1 Contradictions in the Process of Adaptation

4.1.1 Primary Contradictions

The primary contradictions are within a certain element of the activity (Engeström, 1989). As the subject of the activity, Nathan's attitudes towards adjusting the new textbooks shows duality: on one hand, the New Curriculum Standards and the new high school EFL textbooks have urged the teachers to adopt some new teaching philosophies, such as overall unit teaching, project-based learning and so on. But Nathan had little understanding of those new EFL teaching ideas, so he was eager to learn and use them to facilitate his teaching as soon as possible; on the other hand, with the teaching experience of over 10 years and having won multiple teaching honors, Nathan was increasingly reliant on his old-school but effective ways of teaching, fearing that any bold changes will bring out unnecessary troubles to his teaching efficiency. And in his eyes, the textbooks were just like the Bible, prescribing what to teach and how to teach. Any adjustment to the textbooks, in his opinion, would hinder the logic of the textbooks.

"When I'm getting older, I'm not as bold as I used to be in teaching innovation, because my past experience is enough to teach well. But The New Curriculum Standards tells us to rearrange the textbooks, which is not a habit of mine...But at the bottom of my heart I still want to give it a try." (Interview)

Just like Nathan, experienced teachers are usually on the seesaw of high professional agency and professional burnout, holding an ambivalent attitude towards innovative textbook using. Tendency to depend on past experience is a human nature and previous success drawn from the old teaching
mode also breeds teachers' reluctance of making changes. At the same time, as a well-educated community, teachers, reflective and enterprising in nature, are usually highly motivated and open to learn. Therefore, the primary contradictions arise.

4.1.2 Secondary Contradictions

The Secondary contradictions are between the elements of the central activity (Engeström, 1989).

Teaching and researching group (Jiaoyanzu) is a localized form of professional learning community (PLC) in Chinese context, where teachers of a certain subject cooperate to fulfill teaching obligations and realize professional development. Most of the EFL teachers of the Jiaoyanzu that Nathan belonged to were middled-aged teachers, most of who were reluctant to any teaching innovations and planned to teach the new textbooks in the old teaching model which only focused on the language points covered in Gaokao. By contrast, Nathan planned to use Overall Unit Design, an innovative EFL teaching method advocated by many EFL teaching experts, to prepare the units in the new textbooks. However, as the "little brother" in this community, he found it hard to put his innovative ideas into practice, because all the teachers, in the pursuit of high efficiency, needed to shoulder the labor of teaching preparations including the teaching design, PowerPoints and homework. It would inevitably increase the workloads of his colleagues if he suggested doing the teaching preparations based on Overall Unit Design, which would also hinder his rapport with the community. As a result, Nathan had to put aside his plans.

"When you're in a team, you have to think and do as a team player. Others were very conservative in making change. I understood them but honestly that also hindered my motivations. It's impossible for me to do the groupwork first and then design my own class. I would be silly if I volunteered to double my workload." (WeChat record)

The secondary contradictions here are between the subject and the community in the central activity. The participant's personal attempt to seek for teaching innovations in textbooks using contradicts with the conservative tendency of the community. Withdrawal from the community's schedule will bring overwhelming workloads and unhealthy interpersonal relationship to the Participants. Therefore, he hesitated a lot. And also, mal-cooperation of a community caused by different teachers' beliefs is a common plight shared by most high school English teachers.

4.1.3 Tertiary Contradictions

The tertiary contradictions are between the old activity and the new advanced activity (Engeström, 1989). Nathan's innovated teaching was not well received by the students who have been immersed in the traditional way of learning English for almost 10 years (from grade 1 to grade9). The students were more accustomed to passively learning the language points, and thus reacted indifferently to Nathan's interactive language teaching which, as suggested in the New Curriculum Standards, dug out the cultural value of the textbooks and sorted out the logic hidden in the textbook arrangement.

"His class was fast and furious, because he just kept asking questions, which makes everyone so nervous." (Student questionnaire)

"To be honest, I'm more interested in the things related to Gaokao, like some tips or some tricks. I think those cultural stuffs are fun, but to me, they are not very useful." (Student questionnaire)

Contradictions between the students' old learning habits (the old activity) and teachers' teaching innovation (the new and advanced activity) are commonly seen in the existing action researches. Teachers' confidence in continuing the teaching innovation may dwindle after the early unsuccessful attempts.

"I actually agree with the new teaching ideas of the new textbooks that I learnt in the workshop, but the students' cold response just deepened my doubt: will it really work? Is it just because I'm incapable?" (Interview)

4.1.4 Quaternary Contradictions

The quaternary contradictions are between the central activity system and other activities (Engeström, 1989). In this study, the central activity is Nathan's adaptation of new textbooks (Table 2), and other activities can be his family affairs or activities related to the evaluation of professional titles or other social part-time affiliations.

Enterprisingly, Nathan was always anxious for a higher professional title. However, according to the Standards for High School Teachers' Professional Title Evaluations of his school, it's far from enough to just teach well. Papers, projects, teaching contest awards, honors, head-teachership are all needed for professional title evaluation. And it has been increasingly necessary for teachers to devote themselves to educational researches, which gradually becomes a must and trump card in the assessment of professional titles. However, green at researching, Nathan found it demanding to conduct educational studies unless put aside a large amount time to learning specialized knowledge.

"Teacher is a practical occupation. I actually had no idea how to conduct a study. I needed to learn some basic knowledge and spend time to collect data. But my everyday workload was already beyond me. I barely found a balance between daily teaching affairs and doing researches. But if I were to lift my professional title, doing researches was a must. What a dilemma I was in!" (Interview)

The dilemma occurs really often among high school EFL teachers. The standards for professional title evaluation are so demanding that almost requires teachers to be supermen who can excel in teaching, class-managing, researching and so on. But in fact, those different activities "steal" time from each other. And finally, teachers end up nothing but a Jack-of-all-trades.

4.2 Actions Taken to Tackle Contradictions

According to AT, it is the contradictions at different levels that promote the occurrence of teachers' learning through taking actions to tackle the contradictions. Therefore, in the
process of adapting to the new textbooks, teachers' actions to solve the 4-level contradictions can be seen as resolution to realize adaptation, which will be respectively presented in this session.

4.2.1. New Textbook Workshop: Reshape EFL Teachers' View of Textbooks

Stuck in the primary contradictions, Nathan decided to find a mediation to push him out of the comfort zone and learn something new. Coincidentally, a workshop of new textbooks learning was held, which is a localized form of professional learning activity in Chinese context, provides teacher with both professional knowledge and emotional support. Because the new textbooks were about to be put into use, professional development activities about new textbooks using were held in a regular basis in this workshop, including expert lectures, teaching competitions, workshops and so on. At the beginning, fearful as he was sometimes, he had to be there and thus consciously or subconsciously exposed himself to the newest teaching ideas concerning the using of the new textbooks.

Among all the training activities, a lecture on teachers' view of textbooks by a high-school based teacher educator impressed Nathan most. The professor firstly introduced the Overall Unit Design, which required the teachers' active integration and analysis of the textbooks. And then, she pointed out that English teacher should not be the loyal presenter of the textbooks. Instead, teachers are supposed to the artist of using textbooks, able to reorganize the structure of the books and to add extra English learning material to complement the textbooks.

"I used to hold the view that at I won't make mistakes if I loyally follow the instructions on the textbook. However, after listening to Prof. Yang's lecture, I came to understand that English textbooks are not necessarily perfect. Teachers need to reinvent them." (Interview)

And gradually, through the interactions with the professors and co-learners, Nathan was aware of the identity of textbooks and his view of textbooks was completely updated.

4.2.2 Cooperative teaching: Guide the Community to Try Overall Unit Design

Nathan's secondary contradictions arose from the different attitudes towards teaching innovations with the community – the teaching and learning group (Jiaoyanzu). Realizing the benefits of Overall Unit Design, Nathan hoped the community could prepare the lessons of the new textbooks through overall unit designing. However, as a young member, Nathan was not in a proper position to make any suggestions, especially the ones that may heavy the burdens of the elderly teachers.

However, Nathan's school made a reform that every teacher (young or old) should do open class at least on time a term and any other teachers of the same subject need to be present. And their performance in the open class will affect the amount of their annual bonus. As a result, all the teachers complained a lot, especially the elderly who were weak in modern teaching technology. As the youngest member in this team, Nathan was a master of new technology that can facilitates English teaching and thus offered help to his colleagues a lot.

"I've never talked with my colleagues this much before. I taught them how to use modern technology to facilitate teaching and introduced some new ideas on teaching. I found they gradually embraced those new stuff." (Interview)

Gradually, Nathan's role in the community changed from the peripheral participant to a helpful expert at technology and teaching. Nathan sensed that too, so he intentionally introduced the method of Overall Unit Design to his colleagues when discussing the open classes. To his surprise, his colleagues were interested in this new teaching initials and agreed on that the whole group should join Nathan to update their English teaching materials.

Although his colleagues' embrace of this new method of textbook using may be out of their utilitarian mentality. When discussing the arrangement for lesson preparation, the community leader invited Nathan to introduce the definition, principle and approaches of Overall Unit Design in their group meeting. And then, the community members were required to employ the method of Overall Unit Design, with each lesson of a certain unit connecting with one another and consistently contributing to one big idea of the whole unit.

4.2.3 Action Research: Integrate Teaching, Learning and Assessing into Textbooks Using

Disheartened as Nathan was after the first lesson, he shared his unsuccessful experience in the workshop of the teachers' training. The mentor told him teaching and learning should be intertwined instead of being parallel, the reason why his students reacted coldly was because he failed to take students' needs into consideration.

"Prof. Yang told me should not just focus on what I want to teach in the textbooks but also on what students want to learn from the textbooks."

The mentor pointed out that according to the New Curriculum Standards, assessment was the most effective way to check whether teachers' teaching goals are in line with students; feedback. And therefore, suggested him to do action research based on students' feedback and teachers' reflection which would help teachers better their teaching through reflective practices.

According to the basic methodology of action research, Nathan collected students' feedback, reflected on the previous teaching and re-design the lesson that took the characteristics of the new textbooks and students' actual needs into consideration. Nathan did such reflective practices for several rounds, and gradually stroke a balance between the advance teaching ideas and students' traditional language learning habits and utilitarian learning motives.

"Nathan combined something related to the Gaokao into the teaching of new lessons. For example, he showed us that the beautifully-written English expressions that we just learnt..."
from the new textbooks are extremely suitable for the writing part of 2020 Gaokao." (Student questionnaire)

4.2.4 Lesson-based Study: Transfer Teaching of New Textbooks to Academic Output

Nathan's quaternary contradictions arose from the demanding requirements of professional title evaluation, which imposed the extra workloads of doing researches on him. After analyzing the documents of professional title evaluation again, he highlighted the bonus parts directly or indirectly related to English teaching, which includes teaching competitions, educational researches, and educational projects.

Because he was green at conducting researches and occupied with daily teaching, he was combining through academic papers for a research method that could be well received by the beginners of researching. Finally, he was inspired by an article by Professor Wang Qiang, one of the most influential experts at EFL teaching in China, about lesson study which is a type of research directly based on the classroom English teaching and is easy enough for non-professionals to try. After determining the research methods, Nathan began to collect materials for his study. He arranged the teaching designs of first and second round of teaching in his previous action research and collected the feedback provided by his students and colleagues. Then, his began the writing of the paper according to the writing procedures of lesson study introduced by Professor Wang. After finishing the draft, he asked his mentor in the training for supervision and improvements. His mentor praised his ideas of the paper and polished some expressions up to more academic and concise ones.

Aiming at help teachers adapting to the new textbooks, a number of EFL teaching paper competitions about the using of new English textbooks have been mushrooming. Nathan used his paper of lesson study to take part in a city-level competition and won a Second Prize. By giving priority to teaching, Nathan gradually adapted to the new English textbooks through every activity related to teaching, all of which contributed to his professional title assessment as well.

"I'm still working hard for the professional title, but now I make English teaching the center. I only try to get the bonus points concerning teaching, like the project and the competitions. Those activities helped me better understand and use the textbooks, which cannot be achieved in the administrative position." (Interview)

And To Nathan, academic English writing also gave him an opportunity to really reflect on his previous teaching of the new textbooks with an academic lens. Experience of doing researches drove away his fear of researching, deepened his understanding of new English textbooks employment, and put what he learnt from the workshop into practice. It was an act of one stone killing two birds.

5. Conclusion

With the Activity Theory as the analytical framework, the four-level contradictions of the "new textbook adaptation period" are summarized: 1) the new requirements imposed by the new EFL textbooks on teachers and the concerns of teachers about innovative teaching; 2) individual attempt to seek for teaching innovations and the conservative tendency of the community; 3) student's fixed English learning habits and teacher’s advanced EFL teaching philosophy; 4) adjusting the new EFL textbooks and researching activities required by the professional title evaluation.

The corresponding actions: 1) inspired by the teachers' training, he updated his view of textbooks and began to view textbooks as an assistant instead of the Bible; 2) after winning trust among the community by helping his colleagues prepare for the open classes, he guides the community to conduct overall unit teaching design; 3) conduct action researches to achieve the use of new textbooks that integrates teaching, learning and assessing; 4) transfer the experience in new textbook teaching to the academic product through lesson studies.

Based on the participant's contradictions and actions in the process of adapting to the new textbooks, two tips for EFL teachers' professional development emerged from Nathan's case, both of which are of high transferring significant for other teachers in the "new-textbook-adaptation" period:

1) Develop through cooperation: according to Dewey's view that human learning has social characters and thus teachers are supposed to conduct cooperative learning with authorities (Nathan's first action) or peers (Nathan's second action).

Teachers' cooperative learning takes various forms, online and off-line, expert-type and associate-type, in all of which EFL teachers can receive not only the guide from the experts but also the emotional and intellectual support from the peers.

2) Develop through researches: EFL teachers are now not only regarded as the practical participants of the teaching but also the active researchers of the educational problems arising from real classroom teaching. In Nathan's case, both action research and lesson-based study helped him better understand the new teaching ideas and solve the problems confronted in the real classroom teaching, both of which greatly contribute to his teaching effectiveness.

References