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https://doi.org/10.37420/j.cer.2021.002

Research on Practical Teaching Reform of Educational Courses in Teachers Colleges: Taking the Course of Educational Science Research as an Example

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Abstract: *In the context of the new normal school, teacher training must be both reflective and research-oriented, not only must have advanced educational thoughts and theories to guide practice, but also have a certain scientific spirit and scientific methods used in practice and improved practice. Therefore, the practicality of the curriculum has become an important way to cultivate outstanding teachers. This research uses the "Educational Science Research Method" course as the research origin to research the practical teaching reform of educational courses and proposes the current practical teaching mode of educational courses Single, the curriculum itself lacks organic linkage, which is not conducive to the generation of feedback mechanisms and is not conducive to the generation of students' practical ability. It is proposed to deconstruct and reshape teachers' practical knowledge, create research-based practical teaching models, and enhance the teaching pertinence of weak links. Build an organically integrated curriculum system, expand the boundaries of students' practical ability improvement, and other operational countermeasures.*

Keywords: *Practical; Education curriculum; "Educational scientific research method"*

Introduction

"New normal education" is a new education concept put forward by socialism with Chinese characteristics in the new era, aiming at the main social contradictions and the development of fair and quality education in China. In comparison, the new normal education pays more attention to teacher's ethics education and informatization ability (Wan, 2018), and plays a normative and leading role in a more open teacher education system (Hu, 2018). In other words, the new normal school puts forward higher requirements for teachers' professional quality. At the same time, the Ministry of Education issued the *Teacher Education Curriculum Standard (Trial)* in 2011, which pointed out that teachers are "reflective practitioners" and need to improve education and teaching behavior through certain scientific research, to achieve high-quality professional development. *Opinions on Comprehensively Deepening the Reform of Teacher Team Construction in the New Era* put forward that by 2035, the comprehensive quality, professional level, and innovation ability of teachers will be greatly improved, and millions of backbone teachers, hundreds of thousands of outstanding teachers, and tens of thousands of educators will be trained. *The Action Plan for the Revitalization of Teacher Education (2018-2022)* issued by the Ministry of education and other five departments proposed that we

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should promote the construction of teacher education disciplines and the construction of quality assurance system, comprehensively improve the quality of teacher education, and jointly become the basic component of the new form of normal education. Among them, the cultivation of research-oriented teachers is its due meaning. Research teachers should not only have profound theoretical literacy, rich specialized knowledge, and certain research ability, constantly use advanced educational ideas and theories to guide practice, but also have sensitive research consciousness, and consciously discover, analyze and solve problems in educational practice, Teachers with constant reflection and innovative spirit (Wen & Song, 2006).

At the same time, based on the systematic analysis of problems, develop solutions to problems and put them into practice, and learn various skills of designing, executing, and presenting original research in theory and Practice (Sahlberg, 2015). It can be seen that under the background of the New Normal University, teacher training should be both reflective and research-oriented. It should not only have advanced educational ideas and theories to guide practice, but also have a certain scientific spirit and scientific methods applied to practice and improve practice.

The quality of teachers in ethnic areas is a prominent shortboard restricting the development of local education. In recent years, Qinghai Normal University follows the working idea of "facing the grassroots, cultivating all subjects, one specialty with many abilities, and comprehensive quality", highlights the training concept of "new concept, rich knowledge, solid foundation, high quality, strong ability, and wide adaptability", and actively explores a new training mode of "general subject" primary school teachers. The project was selected into the Ministry of education's excellent teacher training reform pilot project in 2014, and was included in the "Qinghai Rural Teacher Support Plan (2015-2020)" in 2015, and became the focus of teacher education reform project in ethnic areas. Since the project was launched, it has attached great importance to the cultivation of reflective and research-oriented teachers. Through the practice modes of subject curriculum, on-campus training, off-campus internship, and graduation practice, a group of excellent primary school general teachers who are fully qualified for the multi-disciplinary education and teaching of primary schools in western agricultural and pastoral areas have been created.

The Basic Situation of Excellent Project Teaching Reform

The Action Plan for the Revitalization of Teacher Education (2018-2022) puts forward that the innovation of teacher education mode and the cultivation of future outstanding teachers need to "pay attention to the training of basic teaching skills and practical teaching, pay attention to the continuous updating of curriculum content, pay attention to the ability of information technology application, and form a new form of teacher education." As shown in Figure 1, the new form of teacher education is the basic portrayal of the new normal education and the key to the cultivation of reflective and research-oriented teachers. The development of school-based scientific research and district and county-level teaching and research projects in basic education also provides an important practical position for teachers' professional development. Therefore, we should pay more attention to the combination of practical ability and scientific research ability in the education and teaching of normal students.

The implementation of the course *Educational Scientific Research Method* just meets the needs of the above

two levels. On one hand, the knowledge of the course is integrated into the whole practical training system. Among them, educational probation and educational practice are the important practical teaching links in the process of training teachers' professional talents. Educational practice includes teaching practice, class teacher practice, and educational investigation, which is an important part of teacher education practice. According to the knowledge learned in the course of research methods, normal students can better carry out scientific exploration on teaching methods and education management in practice, to avoid blindness in education practice. On the other hand, the methodological guidance behind the course can cultivate students' scientific and rational spirit. By improving the scientific literacy and method consciousness of normal students, we can continuously excavate the deep-seated laws of basic education, to promote and improve the education reform and quality in ethnic areas.

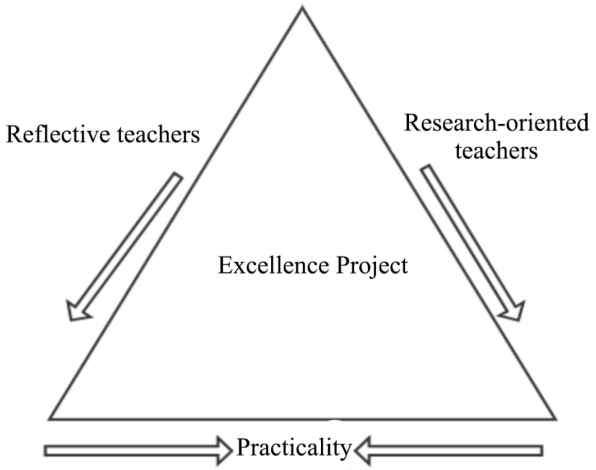

Figure 1. Training objectives and paths of excellent project teachers

Practical Teaching Objectives of *Educational Science Research Methods*

The educational function of a discipline is the element of transforming it into a curriculum form, and the nature of the discipline is the fundamental reason for the formation of curriculum objectives. Educational scientific research is a cognitive process, a creative practical activity to study various phenomena in the field of education and explore the laws of education. It is an applied branch of the education system with strong operability. The course of the *Educational Scientific Research Method* is characterized by both theoretical and practical nature and is based on practical characteristics. Besides, the educational science research of primary and secondary school teachers is not aimed at basic and discovering general scientific laws, but on educational and teaching problems with more situational and practical application value.

Therefore, the basic orientation of the curriculum goal is practice-oriented, that is, to enable learners to acquire basic educational research skills and to serve the cultivation of outstanding primary school teachers in the future. The main purpose of this course is to help learners understand the basic theory, basic principles, and basic requirements of research program design of primary education scientific research, master the operation essentials of various specific research methods and expect to comprehensively use various research methods to solve the problems of education theory and education practice in the practical work of primary education. As far as the nature of the curriculum is concerned, the *Educational Scientific Research Method* is

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a practical course based on the theoretical framework. Based on the above understanding, the curriculum plan of the project determines the *Educational Scientific Research Method* as a professional compulsory course.

Teaching Problems of *Educational Scientific Research Method*

The *Educational Scientific Research Method* is important content and way to Cultivate Normal Students' educational practice ability and research ability. Its scientific and reasonable design and implementation is an important condition to fully show its curriculum value and function. According to the teaching objectives, the teaching contents of the course include the awareness of problems, methods, and innovation of educational research, the general principles, methods and steps, basic knowledge of educational research, and the basic knowledge of educational research; The basic skills of education and scientific research include the skills of determining research topics, collecting research data, selecting variables, using scientific research methods, statistical analysis of research data and writing research reports.

At present, in the teacher education system of normal universities, the cultivation of teachers' educational scientific research ability is absent, which is basically in the state of half neglect. The direct adverse consequences caused by this situation are very unfavorable to the implementation and promotion of an excellent teacher training plan. From the perspective of implementation, primary and secondary school teachers are unable to do scientific research due to a lack of basic knowledge and skills of educational research, which has become a technical problem that hinders primary and secondary school teachers from becoming research-oriented teachers. On the one hand, it is due to the low recognition of primary and secondary school teachers to engage in scientific research, on the other hand, it also reflects the deficiency of teacher education courses in cultivating students' scientific research awareness and research ability. At present, most of the courses of *Educational Scientific Research Methods* were limited to the teaching of general theoretical knowledge of scientific research methods. In the teaching process, the training of students' practical skills in scientific research activities is not paid enough attention to, which makes the teaching of the course become abstract theoretical lectures after divorced from the actual scientific research training. After finishing the *Educational Scientific Research Method*, students were still at a loss about how to engage in educational scientific research activities and many so-called research methods. This fully reflects that in the process of writing a graduation thesis or investigation report, they still have any doubts about the topic selection and research design, and can not enter the role of research-oriented teachers as soon as possible. Although these problems can not be simply attributed to a single cause, they have exposed the irrationality of the traditional research method curriculum.

Investigation and Analysis of Practical Teaching Reform of Educational Courses

This study takes the implementation of the *Educational Scientific Research Method* as a case study, conducts a questionnaire survey and part of interviews on the current situation of practical teaching of undergraduate students in normal universities. 200 students majoring in this course are selected as samples, and 200 questionnaires are distributed. Finally, 190 valid questionnaires are collected. Some teachers and students were interviewed.

From the perspective of teachers' professional development, at present, the academic community is gradually realizing the complexity of educational practice and the value of individual teachers in practice (Shi, 2017). Therefore, education courses should pay more attention to and wake up the future teachers' pursuit of professional development, and constantly improve their confidence and development motivation, so that normal students can make positive changes subjectively and lay a foundation for the sustainable development of research-oriented teachers. In this regard, the questionnaire of *Research on Practical Teaching Reform of Educational Courses in Normal Universities—Taking the Course of Educational Science Research Methods As An Example* is mainly composed of four dimensions: professional identity, the setting up of practical courses, the content design of practical teaching, and the application of practical teaching. Among them, professional identity is the basic cognition of teachers' careers in the future. This dimension is of great significance for normal students to understand and establish their educational beliefs. It is also one of the cognitive angles of normal students' self-examination and rational thinking on Research-oriented teachers. The establishment, design, and application of practical courses are to investigate students' practical understanding and application of relevant educational courses, especially the course of *Educational Scientific Research Methods.*

According to the questionnaire, 73.75% of the students have a high sense of professional identity of "teachers", which is consistent with the training objectives of the program. At the same time, during the interview with some students, they also said that they would give priority to the occupation of teachers.91.25% of the students said that they were more interested in practical courses, but their understanding of practical teaching was still vague and single.

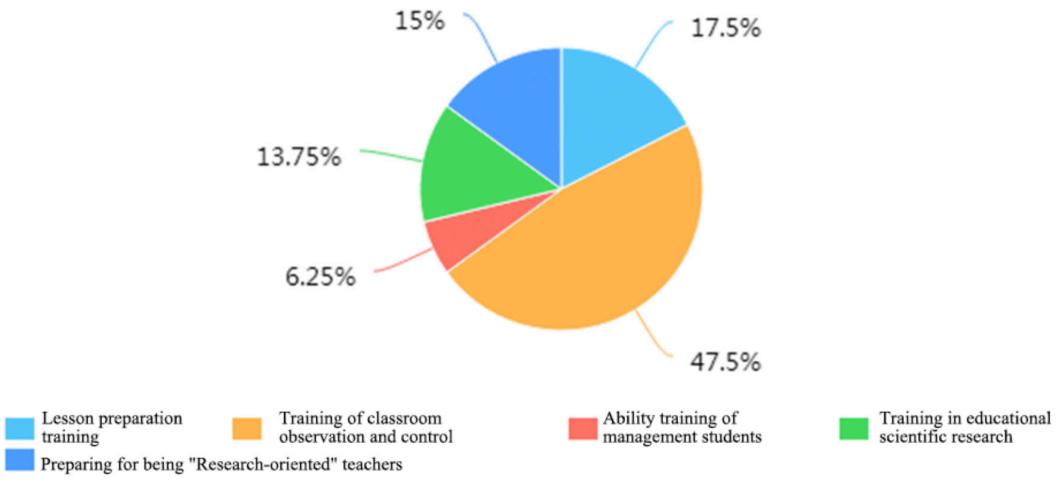

Figure 2. Understanding of practical teaching

As shown in the figure above, normal students' understanding of practical teaching is mainly focused on the training options of classroom observation and classroom control, which indicates that in the long-term process of education and teaching practice, the guidance of normal colleges to students is mainly subject observation and classroom management.

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Single Practical Teaching Mode, Lack of Tesearch Teachers

According to figure 2, the practice methods involved in education courses are relatively single, mainly focusing on a group report, discussion, and homework display, which are also the three practical teaching modes mainly adopted by the current education courses. Figure 3 shows that students are best at teaching and preparing lessons, which shows that the education courses in normal universities attach great importance to students' basic skills, and have carried out in-depth practice on the first difficult problem of their future career: "lecture". But at the same time, it also reflects the singleness and mode of practical teaching, which is not conducive to students' comprehensive grasp of practical knowledge and the generation of research-oriented teachers. For example, the content of classroom observation and interview involved in *Educational Scientific Research Method* is mostly superficial, which can not be combined with practice in time and effectively, and can not provide support for the hybrid research method of "participation in observation, in-depth interview, detailed description, and theoretical explanation" in classroom records (Wang, 2008).

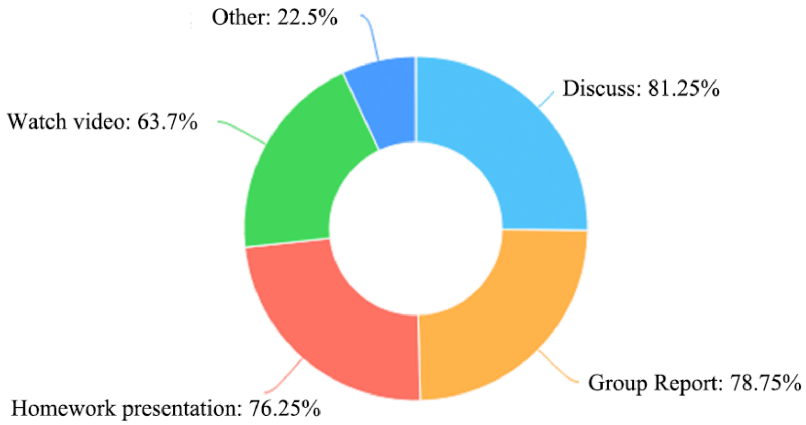

Figure 3. Practice mode involved in educational courses

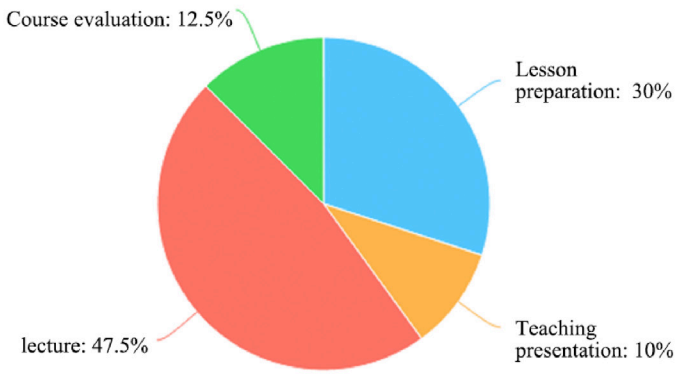

Figure 4. Types of practice students are best at

Lack of Organic Links in Courses, Not Good for Generating Feedback

Given the limitation of curriculum design and class hours, teachers usually take the questionnaire, interview, and literature as the key contents of the course. According to the survey, 70% of the students reported that they did not know how to make statistics after receiving feedback from the questionnaire results. Among them, 30% of students through Excel statistical analysis, but no test; 20% of students through the traditional statistical methods, in Word item by item statistics, and the results used for demonstration analysis. As a result, students lack effective data processing support in the process of questionnaire analysis and demonstration, and lack of power to display the research results. The main reason lies in the lack of follow-up and linkage of the course. Teaching *Educational Scientific Research Methods* before students have mastered the statistical principles and methods lacks the organic link of the course, and its disadvantages are obvious. Moreover, due to the late opening of the course, students can not effectively select and design topics in the process of educational practice, and its feedback mechanism has obvious hysteresis, which is extremely unfavorable to the ecological chain of the whole primary education major. On the other hand, at the beginning of the research design, the lack of effective theoretical support and theoretical guidance seriously affected the depth and breadth of the research.

Insufficient Practical Ability of Students and Classroom Control Ability

The above two deficiencies directly lead to the lack of practical ability of students, one of the outstanding performance is the lack of control of the classroom. Faced with the collective voice of the students and the biased answers to individual questions, the interns lost their control over the classroom for a while and were completely controlled by the students. Interns can feel that they have been "taken away" by students, but do not know how to "know how to return". This kind of classroom is caused by many reasons. On the one hand, it comes from the deviation of the training goal of normal students in normal universities. Most of the deviation comes from the disconnection with basic education. In other words, the action of basic education reform is always "hindsight" and fails to adjust the curriculum at the first time, resulting in the lack of "pragmatic" performance in the cultivation of normal students. At the same time, it also comes from the lack of students' extracurricular activities ecosystem. At present, the extracurricular activities are mostly limited to arts and sports, but few students are interested in scientific research and can persevere in doing it. It is not a new thing for undergraduates in many double first-class universities to carry out scientific research activities, but for normal universities in ethnic areas, this step is still more difficult and rugged.

Exploration of Practical Teaching Reform Strategy of Educational Courses

As practical knowledge plays an irreplaceable role in the formation of perfect teacher knowledge, the curriculum reform of teacher education must attach importance to the acquisition of practical knowledge of normal students and cultivate their educational practice ability deliberately. This is not only the requirement of the times to improve the educational practice work in normal universities, but also the key to obtaining good teachers' professional quality.

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Deconstruction and Remodeling of Teachers' Practical Knowledge

With the tide of teachers' specialization, we have a more comprehensive and profound understanding of teachers' knowledge. Shulman (1987) thinks that teachers' knowledge consists of seven parts: subject content knowledge, general teaching method knowledge, curriculum knowledge, subject teaching method knowledge, knowledge about students, knowledge about the educational situation, and knowledge of other courses. Sternberg proposed that teachers' knowledge consists of content knowledge, teaching method knowledge, and practice knowledge. Grossman believes that teacher knowledge consists of subject content knowledge, learner and learning knowledge, general teaching method knowledge, curriculum knowledge, situational knowledge, and self-knowledge. Some people also discuss teacher knowledge from the aspects of subject knowledge, curriculum knowledge, teaching knowledge, teaching environment knowledge, and their knowledge (Fan, 2003). There are different views, but the concepts of educational situational knowledge, practical knowledge, situational knowledge, self-knowledge, and self-knowledge are all practical knowledge closely related to teachers' professional development. Among them, ontological knowledge refers to the specific subject knowledge possessed by teachers, conditional knowledge refers to the theoretical knowledge of educational theory and psychology, and practical knowledge refers to the curriculum situation knowledge and related knowledge that teachers possess in realizing the purposeful behavior, which is also the "teacher's practical knowledge" or "own knowledge". Among the three kinds of knowledge, practical knowledge, ontological knowledge, and conditional knowledge are significantly different in nature, form, function, and value. It plays a key role in integrating ontological knowledge and conditional knowledge and solving various problems in the situation in time. It is the core way of "transforming knowledge into wisdom", This kind of knowledge can only be obtained through personal practice and reflection. Due to the irreplaceable position and role of practical knowledge in the formation of perfect teacher knowledge, teacher education curriculum reform must attach importance to the acquisition of practical knowledge of normal students, and deliberately cultivate their educational practice ability, to facilitate students to actively use practical strategies to narrow the gap between "ideal curriculum" and "implemented curriculum" (Liu, 2014).

Create a Research-based Practice Teaching Model

Creating a positive and effective teaching model is the key to the practical teaching of normal students. According to the special requirements of curriculum practice, this study puts forward a research-based practical teaching model which is based on the four links of "theoretical explanation practice training reflection summary evaluation improvement". Among them, "theoretical explanation" is an important way for normal students to acquire ontological knowledge. Teachers are required to creatively process the contents of teaching materials according to the syllabus, select the most suitable teaching content in the students' nearest development area, and conduct systematic knowledge teaching so that students can systematically understand the basic knowledge and basic principles of the discipline, and master the key points and difficulties. Make clear the connection between the content of the course and other disciplines. Since students have a preliminary perceptual understanding of primary school education and teaching when offering the course, it is more appropriate to use the case teaching method to provide students with a large number of primary school cases, organize students to discuss, and use the theories learned to analyze practical problems." Practice training" stage is to let students use the research methods they have learned to design research design and

research strategies for their educational problems in the process of educational internship and educational practice. The basic procedure is "problem determination - access to data - a collection of data - compilation of data - writing a report", which enables students to carry out classroom observation, questionnaire survey, interview, and other research methods with questions and tasks before entering the teaching line. In this process, we can organize group discussion within the class in stages, brainstorming and other ways to explore the problem-solving solutions, to achieve the purpose of practical training." Reflection summary" stage requires students to make a comprehensive reflection and summary of their practical learning and research process in the "practice training" stage, find problems and deficiencies, explore better and better solutions and methods, and improve their research ability. At this stage, teachers need to organize seminars and related lectures according to some typical and concentrated problems in the practical training of students and discuss with students to expand and deepen the course content. The "evaluation and improvement" stage is mainly based on the first three stages, taking the process data and research results of the subjects done by students in each stage as the generation resources of education research methods course, organizing students to communicate and evaluate, teachers giving appropriate tips, comments and summarizing, to further improve students' ability of educational research and expression. Guide students to form a rational understanding of the educational research process and research methods by combining their learning gains. Teachers should pay attention to collect opinions on teaching materials and teaching methods, collect and preserve excellent homework and students' research results, to lay a solid foundation for improving and enriching future teaching.

Strengthen the Teaching Pertinence of Weak Links

According to the survey, some students still have some weak links in practice after learning the course. Therefore, at the beginning of curriculum design, we should adjust the teaching content to enhance the teaching pertinence of weak links. In terms of teaching content, the selection of topics, the reading and writing methods of literature review, and the application of research methods need teachers to enrich the teaching content according to the students' situation, to achieve a targeted goal. In the teaching process, the teaching content should be adjusted appropriately. For example, in the process of thesis writing, the logical order of traditional teaching materials should be broken through, and the writing of abstract should be carried out after the completion of the thesis, to test the logic and rationality of students' writing. For example, in the specific research methods, a classroom observation is introduced as the first method to let students try a more real and effective field experience. Lock in the research objectives before the internship, and treat each internship as a field survey and action research, to enhance students' research awareness and stimulate their research interest. Also, the purpose of data collection should be enhanced to help students identify and select the valuable literature from a large number of documents, and organize and summarize the literature. Generally speaking, the freshmen and sophomores can select, read and reorganize the literature, and can initially complete a simple literature review; in the third stage, students need to choose, read and sort out the literature, and can initially complete a simple literature review. To be able to complete the research design, to write the preliminary thesis, and to determine the topic of the graduation thesis; to enter the specific education field of practice with research problems in the fourth stage of University, to carry out the all-round practical operation and practical experience, and to effectively use various research methods to complete the graduation thesis, to lay the foundation for becoming a "Research-oriented" teacher.

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Building an Organic Integrated Curriculum System

It is a long-term and comprehensive process to cultivate students' scientific spirit and research consciousness. It is not a course to be accomplished overnight. The only way to promote teachers' professional development is to use the overall and systematic thinking mode. Therefore, in addition to the *Educational Scientific Research Methods*, we need to build a scientific and reasonable curriculum system. With collaborative courses such as thesis writing, educational statistics, SPSS software application, and qualitative research methods, we are committed to the generation of students' practical knowledge and the cultivation of research-oriented teachers. In terms of opening time, it is appropriate to advance the course to the first semester of junior college or the first semester of sophomore, to make full preparation for internship and writing research papers. At the same time, with the theoretical courses such as *Pedagogy* and *Teaching Theory*, the theoretical guidance for students' practical research should be strengthened, and the academic level of practical knowledge and research papers should be improved.

Expand the Boundary of Improving Students' Practical Ability

Educational practice, probation, and educational investigation can effectively improve students' practical knowledge and ability, and enhance their ability and self-confidence in teaching. Among them, the four-month internship is an important way for normal students to fully integrate into school education and teaching activities and participate in students' daily teaching management, which is of great significance to the professional growth of normal students. Therefore, while cultivating students' practical ability, colleges and universities need to take a more "pragmatic" attitude and fully consider the positive value of the school's ecological field for students' future careers. For normal universities, based on the needs of teachers' specialization, school-based researchers in basic education will play an important role in future teachers. Therefore, to enhance the normal students' interest in scientific research, we can try to start with the academic extracurricular activities, build the extracurricular academic research system, strengthen the incentive mechanism of scientific research, especially the investment of scientific research funds, so that more normal university students have the opportunity to participate in scientific research activities. Based on the tutorial system, a combination of course teaching tutor and academic research tutor is implemented to equip normal students or scientific research teams with corresponding academic research instructors. At the same time, through the internship and other activities in the middle of the semester, we can establish a scientific research cooperation relationship with the practice school, and build an effective platform for normal students' scientific research.

To strengthen the research ability of normal students, expand their research thinking, deepen their research consciousness and forge research-oriented educators are the important objectives of practical teaching reform in normal universities, which are in line with the purpose of the current reform and development of teacher education and lead the direction of teachers' professional development. This study only takes the course of *Educational Scientific Research Methods* as a case, reflecting one side of teachers' professional development. However, to increase the practicality of the curriculum, we need to strengthen education reflection and education guidance, find the most appropriate way from the overall framework of education, form a joint force with the curriculum, and jointly promote the in-depth promotion of practical teaching reform of

educational courses.

Funding

This study was supported by the 2017 Qinghai Normal University Teaching Research Project: Research on Practical Teaching Reform of Educational Courses in Normal Universities [No. QHNUJY2017109].

References

Wan, M. M. (2018), new normal education in the new era. *Journal of Northwest Normal University (SOCIAL SCIENCE EDITION)*, 55 (05), 69.

Hu, Q. T. (2018), "time orientation and path selection of the construction of" New Normal University ". *Journal of South China Normal University (SOCIAL SCIENCE EDITION)*, (06), 60-65, 189-190.

Wen, Y., & Song, G. W. (2006). Research teachers and their development. *Chinese Journal of education*, (8).

Salberg, P. (2005). *Finnish Road: what can the world learn from Finnish educational reform*. Nanjing: Jiangsu Phoenix Science and Technology Press, 116.

The project group of "national survey on the cultivation of normal university students in China" (2014), report on the investigation and policy analysis of normal students' Cultivation in China's normal universities. *Education research*, 11.

Shi, J. Q. (2017). On the "practice guidance reflection" oriented path of University Teachers' professional development. *Teacher Education Forum*, 11.

Wang, J. (2018). Class history: methodology and method as teaching research. *Education research*, 9.

Hulman, L. S. (1987). Knowledge and Teaching: Foundations of the New Reform.11.*Haward Educational Review*, 57(1), 135-143.

Department of Normal Education, Ministry of Education. (2003). *Theory and practice of teacher professionalization*. Beijing: People's education press, 56.

Fan, L. H. (2003). *Research on the development of teachers' teaching knowledge*. Shanghai: East China Normal University Press, 14.

Liu, X. D. (2014). On Teachers' practical knowledge and curriculum implementation. *Contemporary teacher education*, 3.