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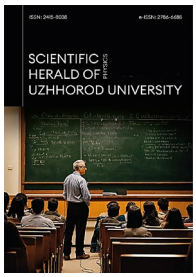

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Effectiveness of case study method in teacher preparation in Kazakhstan

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Abstract

Relevance. The research is relevant as it evaluates the effectiveness of the case study method in developing professional competencies of future teachers in Kazakhstan, where this approach is underutilized. It addresses a gap in the current teacher training system by comparing the case study method with traditional teaching approaches and providing evidence for its potential benefits.

Purpose. The purpose of this article is to evaluate the efficacy of the case study method in nurturing the professional competencies of prospective teachers enrolled in the "Foreign Language: Two Foreign Languages" educational program. Additionally, the study seeks to compare the effectiveness of the case study method with conventional teaching methods and put the developed cases to the test.

Methodology. The research relied on empirical methods to assess the participants' initial and final levels of professional competence.

Results. In the course of the pedagogical experiment, the case study method was employed to introduce the revised "Educational Psychology" course content. The aim of the course is the theoretical and practical mastery of knowledge about the psychology of educational activity, the relationship between learning processes, teaching, training, and education, as well as the formation of scientific psychological thinking, professional knowledge, and skills of future specialists in the field of educational psychology.

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Conclusions. Using the case study method in teacher training enhances professional competencies and increases motivation for learning. Research shows significant improvement in competencies among those taught using this method compared to traditional education.

Keywords: higher education; future teachers; professional competencies; interactive technology; practice-oriented focus.

Introduction

The competitiveness of specialists largely depends on the quality of training of graduates by universities. For this reason, many countries emphasize practice orientation, continuity of learning, and lifelong learning among the main objectives of education [1-3]. Scientists, teachers, and educators are looking for effective methods and approaches in the training of specialists that contribute to rapid adaptation in the workplace and develop professional competencies. Today, the case study method has proven to be an invaluable tool for educators as it enables students to take an active role in their own learning and assume responsibility for their education. This method improves critical thinking and develops skills in identifying and solving problems, students also learn to analyze data, draw their own conclusions, and participate in discussions [4].

However, Kazakh universities do not often use the case study method in teacher training. A significant number of teachers continue to conduct classes in the traditional form of teaching and learning, using active teaching methods that increase knowledge, enthusiasm, and motivation; the student is a passive participant in the educational process. Among the main reasons for refusing to use the case study method are ignorance of the technological features of applying this method in practice, an insufficient number of cases suitable for cultural content, and the difficulty of developing one's own cases [5]. Students also experience difficulties in working with the new method. When analysing cases, students should be able to think critically, make judgments, create and use an integrated approach to problem-solving, and apply their disciplinary knowledge to resolve real-life issues. Students try to avoid group discussions or share work among themselves but do not solve it collaboratively [6]. This study therefore desires to examine if the case study method is an effective form of learning that contributes to a better formation of the professional competencies of prospective teachers in comparison with the traditional form of learning.

To begin with, let's figure out what professional competencies and skills a teacher of the 21st century should have. 21st-Century Skills have been identified by many international organizations and projects, such as the Assessment and Teaching of 21st-Century Skills project, the Partnership for 21st-Century Skills, the OECD's Definition and Selection of Competencies, and the European Union's Key Competences for Lifelong Learning. According to J. Voogt and N.P. Roblin [7], these definitions have in common an emphasis on collaboration, communication, IT proficiency, creativity, critical thinking, problem-solving, and sociocultural skills. In the 21st century, the main emphasis in education is on the ability and willingness to apply the acquired knowledge in practice rather than on memorizing facts. Therefore, 21st-century teachers must be competent in the field they teach, possess educational and work competencies, and support students' skill development. [8]. So, it can be concluded that for the formation of 21st-century skills, the case study method is an effective method that prepares students for professional activity by organizing training on real examples.

The main concern of the present study was to examine the effectiveness of the case study method in teacher preparation at a university in Astana, Kazakhstan. The study addressed the following:

1. Is the case study method effective in teacher training in Kazakhstan?
2. What type of cases do future teachers prefer to solve?

Materials and Methods

The following methods were used during the study: theoretical (analysis, synthesis, generalization, deduction, induction); empirical (observation, questioning in Google Forms); experimental (stating, developing and diagnostic experiment); statistical (statistical analysis of data, qualitative analysis of research results). The research was conducted using Kazakh and foreign literature, materials from conferences, curricula, and articles.

The study design was experimental which compared two groups, an experimental group, and a control group, while data was collected using the qualitative method. Second-year students of the educational program "Foreign language: two foreign languages" taking the course "Educational Psychology" took part in the experiment. The study was carried out for one semester, the 2020-2021 academic year. As part of the program, 15 seminars using the case study method were conducted. The experiment took place in three stages: in the first stage, students passed a Google Forms test (40 questions) to determine their level of knowledge of pedagogy and psychology and solved small pedagogical cases. The necessity of a case-measurer is associated with the truth that the assessment of competencies cannot be reduced to the answers to test questions since competencies are the capacity to apply information, abilities, and individual qualities for effective activity in various problematic professional situations. The advantage of case measurers is that their use provides an opportunity to get a fairly complete picture of the professional qualities of the future teacher, and the competencies formed in him/her.

In the second stage, after analysing the test results, the experimental group (EG) – 21 students, and the control group (CG) – 22 students were determined. Lessons were given implementing the case study method in the group participating in the experiment, whereas they were taught the traditional way in the control group. At the end of each week, the knowledge of the studied and mastered material was tested. The purpose of this course is the theoretical and practical mastery of knowledge about the psychology of educational activity, the relationship between the processes of learning, teaching, training, and education, as well as the formation of scientific psychological thinking, professional knowledge, and skills of future professional in the field of educational psychology. The traditional form

of learning involves the organization of the educational process on the basis of lectures, practical classes, and seminars, where the teacher is the source of knowledge. The main teaching methods are lectures, narrative reports, explanations, discussion, and work with textbooks. Teaching aids: visual and technical aids, textbooks and manuals, didactic materials, reference materials, and other literature on teaching methods.

Initially, the students demonstrated ease in working with various case scenarios. As aspiring educators, they naturally leaned towards supporting the teacher's perspective, adding complexity to finding a resolution that would be agreeable to all parties involved. Students gradually learn to process information quickly and correctly, actively participate in discussions, and courageously argue while interacting with each other. In the third stage, final testing and cases were conducted to determine the level of professional competencies (exam). At the exam, students had three cases, the solution of one case does not exceed 20-30 minutes. One case is aimed at testing three to five competencies. Case solutions were evaluated according to the following criteria:

- the quality of the analysis carried out and the validity of the conclusions drawn;
- logic and structure of presentation;
- use of theoretical concepts and theories of educational psychology;
- non-standard thinking when developing a solution;
- consideration of modern psychological and pedagogical peculiarities and conditions.

The success of the development of professional competencies of prospective teachers was evaluated by the exam results. The distribution of points was as follows: from 0-49 points – below low level, 50-69 points – low level, 70-89 points – average level, 90-100 points – high level.

Results and Discussion

Case study is a practical teaching method that prepares students for professional activity by implementing practical tasks. The use of cases in the training of future teachers is an effective pedagogical strategy since cases provide an opportunity to gain pedagogical experience in teaching and solving problems that future teachers may encounter in their professional activity, develop thinking and reflection skills [9; 10]. Case study material may consist of a describing case or situation. Examples of written documents include business cases, newspaper articles, descriptive essays, medical records, and legal cases. The material can be presented as video or audio instead of just text. The material may include diagrams or quantitative elements describing physical, scientific or economic parameters [11-13]. Case-based learning can take many forms, most often in the form of discussion. The discussion of a case takes place in several stages: first, the teacher gives the students a case, then the students analyze the case before the lesson, and during the lesson, a joint discussion of the case and the search for its solution take place.

The following principles of case-based learning are distinguished [14]:

1. Case-based learning is an effective way to bridge the gap between theoretical knowledge and practical application.
2. It prepares students for future challenges by improving their analytical and problem-solving skills while boosting their confidence. The learning approach focuses on the individual student.
3. Learning is student-centred.

Most teachers use the case study method in senior courses because students already have experience in teaching practice. First-year students have a negative attitude towards the unfamiliar method due to lack of experience unless they are provided with teacher support and guidance [6]. By implementing this method in the classroom, students become active participants in the learning process, which enhances retention and comprehension of educational material. This method also encourages students to continuously develop their skills, improves critical thinking abilities, and bridges the gap between theory and practice [14-16]. In this method, the teacher's role also changes. He acts as a facilitator helping students work together to solve problems from different perspectives [17; 18].

The students had to solve the difficult dilemma of the class teacher: how to maintain her authority, not hurt the feelings of the accused boy, and prevent bullying in the classroom. Studying the influence of psychologically unhealthy family environment on the formation of personality, students concluded that the lack of harmony and understanding of the child by parents leads to a deficit of positive emotions, deformation of interpersonal relations, violation of relationships with teachers and peers, deteriorating behavior, and academic underachievement. The students suggested the following solution: the class teacher should conduct an explanatory conversation with the class about responsibility and tolerance. She must explain that everyone makes mistakes; the main thing is to be able to admit them and be able to correct them. You can't judge a person by one bad deed. Give Kolya a responsible task so that the class understands that Kolya has grown up and no longer commits mistakes, it also gives Kolya confidence. It is also necessary to talk to the boy's parents and, together with a psychologist, help the boy not to get lost in life.

Students were also offered cases from open Internet resources. For example, the case "Cheating". The author of this case is Clyde Freeman Herreid, University at Buffalo, State University of New York. This case is aimed at solving the problem of relationships in the classroom. This case examines the problem of cheating among students and the attitude of classmates and the teacher towards cheating students, as well as the assessment of such students. The participants were motivated to solve this case because they themselves sometimes cheat, do not realize full responsibility, and do not consider this issue on the part of the teacher. In solving this case, students had to act as a teacher and fairly resolve the situation. The students were divided into two groups. The first group believed that students should be given a second chance and retake the exam for them, the second group believed that all students should be treated fairly and the teacher should leave rogue students for re-training. The correct solution to this issue also affects the authority of the teacher.

Students were also provided with additional theoretical materials for cases that contribute to the qualitative solution of cases. An important condition was the use of theoretical material in solving cases. The video cases were also offered for students. The idea of working with video cases arose due to the fact that generation Z is more focused on working with technology, the Internet, and independent learning [19-22]. One of the examples of a video case for the film "My name is Kozha". It was filmed in the USSR but it has relevant values even at the present time. The film is based on stories from the book of the famous Kazakh writer Berdybek Sokpakbayev. The main character is a restless boy, Kozha, who constantly gets into trouble. For a boy of 12, the whole world does not look like the adults want it to. Like all children, he would rather run, climb somewhere or take something without permission, but behind all these actions there is always only childish sincere curiosity. However, time passes, and even such a fidget as Kozha realizes that he must take responsibility for the consequences. All adults and some peers consider him a bully, but in fact he is more honest and noble than all those who think so about him [23].

The main purpose of watching this film was to study the influence of family, school, friends and environment on the development of a teenager's personality. The questions and tasks for the film were developed. This article presents some of them.

1. What values are discussed in the film?
2. Do you agree with the statement "A student is not a vessel to be filled, but a torch to be lit"?
3. Give psychological characteristics to Kozha.
4. Discuss Kozha's inner conflicts.
5. Evaluate the authority of the teacher shown in the film and the role of the teacher in the development of the personality.
6. How is the problem of fathers and children considered in the film?
7. Why did Kozha, being a witness to Sultan's bad deeds, never betray him?
8. Compare the problems of teenagers in the Soviet times and in the 21st century.

During the experiment, both groups studied the following topics: Introduction to educational psychology; Basic concepts; History of educational psychology; Developmental psychology; Basic concepts related to development; Learning and teaching; Modern learning theories; Albert Bandura's social learning theory; Psychological characteristics of assimilation; Typology of underachieving students; Formation of educational motivation; Features of educational activity at different age stages; Age and individual characteristics of students; Modern concepts of the educational process; Children with special needs; Key competencies of school leavers and university graduates; Psychology of pedagogical assessment. For the experimental group small pedagogical cases were developed, video cases and took cases from open Internet sources. Below are examples of developed and studied cases in the experimental group. In the fifth grade, the boy lost his mobile phone. The teacher gathered the children of the class and asked them to show their bags but the phone was not found. Then the guys said that Kolya took the phone, arguing that in the primary school the boy took other people's things without permission and even money from the teacher. The boy denied everything. In a conversation with the primary school teacher, it was confirmed that the boy had stolen several times and was caught. It also turned out that the boy's parents divorced, and he lives with his father, who remarried and is raising two children. The boy's father is busy at work, and the wife is engaged in raising the children. The stepmother often scolds the boy. Questions and tasks:

1. How does the psychological situation in the family affect the development and behavior of the student?
2. What should the class teacher do in this situation?
3. What kind of work should be done with the class to prevent the boy from being nicknamed "thief"?

The first research question's intention was to reveal if the case study method was effective in teacher training in Kazakhstan. The findings in Table 1 showed that initially, the participants of both groups had almost the same levels of formation of professional competencies. The high-level indicator in the experimental and control groups was 14.29% and 13.64%, respectively. The moderate indicator in the experimental group was 52.38% which is 2% lower than in the control group (54.54%). The indicator of low levels in the experimental and control groups was 33.33% and 31.82%, respectively.

Table 1. The level of formation of professional competencies

Groups	Number of students	Pre-test (%)			Post-test (%)		
		high	moderate	low	high	moderate	low
EG	21	14.29	52.38	33.33	42.86	52.38	4.76
CG	22	13.64	54.54	31.82	22.73	63.63	13.64

Post-test results showed that the level of formation of professional competencies in the experimental group was significantly greater compared to the control group. The experimental group had a higher high-level indicator (42.86%) than the control group (22.73%). The moderate-level indicators in the experimental and control groups were 52.38% and 63.63%, respectively. The indicator of the low level of professional competencies formation in the experimental group was 4.76% which is lower than in the control group (13.64%).

Comparing the results before and after the experiment, it can be concluded that the level of development of professional competencies of prospective teachers has increased in both groups, but the experimental group has significantly higher indicators compared to the control group. In the experimental group, the indicator of a high level of formation of professional competencies increased by 28.57%, and the indicator of a low level decreased by 28.57%. In the control group, these indicators were 9.09% and 18.18%. The results proved that the case study method was an efficient method in teacher preparation that

prepared students for future teaching activities and developed professional competencies.

Research question two discovered the preferable type of cases among future teachers. After completing the research work, to find out what kind of cases the experimental group's participants preferred, they were surveyed using Google Forms. The following questions were included in the questionnaire: the preferred method of instruction: traditional or case-based, the preferred kind of cases, challenges encountered by the participants while solving cases, use of the case study method during the exam, the interest, eagerness and readiness to participate in cases creation (Table 2).

Table 2. Students' interest in applying case study in the classroom

Type	Category	Number of students (N=21)	Percentage (%)
Types of lessons	Case study	17	81
	Traditional	4	19
Types of cases	Small with illustrations	9	42.86
	Big	4	19.05
	Video cases	8	38.09
Challenges in solving cases	Inadequate level of knowledge of theoretical material	9	42.86
	Personal characteristics of students	12	57.14
Exam form	Case	11	52.38
	Traditional	10	47.62
Create own cases	yes	11	52.38
	no	10	47.62

Following Table 2, 81% of students say that case-based lessons are more productive because they help students apply theoretical knowledge in practice, become ready for professional activities, and improve their individual and proficient competencies. 19% of students are not ready for a new format of education and choose the traditional one. The leading position is taken by small cases with illustrations (42.86%), followed by video cases (38.09%) and big cases (19.05%). Most of the respondents (57.14%) noted that they experienced difficulties in solving cases due to personal characteristics (fear of being ridiculed, and lack of communication skills), and 42.86% of respondents indicated an insufficient level of knowledge of theoretical material in pedagogy and psychology. Over half of the participants (52.38%) possess a positive attitude towards solving exam cases, and 47.62% prefer exams in the traditional form, explaining this by the fact that solving a case does not have a single correct answer, experience difficulty in finding enough time to resolve a particular case, it is not possible to evaluate one's understanding of a subject based on the solution of a single case. The majority of students (52.38%) are interested in generating cases with the teacher, as they willingly disclose challenging problems they faced at school, it was difficult for them to resolve; 47.62% of the participants believe that it might be difficult to create case-specific questions and activities, as well as to analyze the solution of the case since extensive knowledge in the field of pedagogy and psychology is required.

The concern of the present study was to examine the effectiveness of the case study method in teacher training in Kazakhstan. The results of the experiment show that the case study method contributed to a better formation of the professional competencies of prospective teachers. The pedagogical cases offered to the students, as well as their subsequent discussion in the classroom, contributed to the acquisition of pedagogical experience, strengthened confidence in their knowledge and abilities, and developed communication and problem-solving skills. Case solving teaches students to systematize theoretical knowledge, analyze the behaviour of a difficult student, find ways to motivate students, and look beyond the classroom. Applying this method in the classroom encourages students to ask relevant questions and provide professional solutions [24-26]. Small achievements in the classroom are the successful completion of all types of practices and quick adaptation to professional activity.

The success of the application of the case study method in the training of prospective teachers is confirmed by research conducted in Norway. Teachers from 15 Norwegian universities conducted pedagogy lessons for students of the one-year postgraduate teacher education program and a five-year integrated program leading to a master's degree using the case study method. The study's objective was to determine the impact of the chosen method on the development of prospective teachers' competencies. A group of teachers engaged in self-study in the application of the case study method and collaborative learning in order to enhance their teaching skills and be role models for future teachers. The teachers came to the conclusion that applying the studied method facilitates the learning of theoretical material, and creates involvement and interest by giving students time to review the literature and participate in a deeper discussion, as well as the opportunity to apply their own experience [27-30].

Practice shows, that higher education institutions use the case study method in online learning. For example, S. Lee et al. [31] tested the perception of this method by students and instructors, instructional design, the role of participants and technical support in online MBA program. The author found that online case-based learning is implemented in the same way as a traditional case study. Moreover, there is an increase in involvement in the educational process through the use of technology tools. L. Richman [32] tested the efficacy of online case studies in training future teachers at three US universities. The results of the study showed that the use of online cases significantly increases the level of students' knowledge,

interest and desire to participate in case solutions due to their realistic and reflective nature.

The implementation of video-based teaching is gaining popularity in and outside of classrooms [33]. M. Fyfield et al. [34] consider that the use of video in the classroom is a powerful tool to convey content and transform pedagogical methods. Instead of being passively watched, videos should be accompanied by educational activities. V. Laparra et al. [35] revealed that educational videos had a positive impact on student's academic performance. According to D. Maddock [36], educational videos showed higher learning results in comparison with live lectures, and work with course books. A. Wahyuni and A.R. Utami [37] came to the conclusion that the use of YouTube content improved the speaking skills of English learners.

Conclusions

After comparing the research results, it can be concluded that the case study method is effective for training prospective teachers in the traditional and online forms of organizing the educational process. This method enhances students' interest and professional competencies through practical orientation. Moreover, most students of the experimental group preferred small cases with illustrations and video cases, this was due to the fact that students preferred to spend less time reading the educational material, and spend more time searching for a solution; video cases provided an opportunity to gain life experience in the process of discussing the film. In this article, the research on prospective teachers but did not survey current teachers about difficulties was conducted using the case study method. This is the main limitation.

Thus, the case study method has proved its effectiveness in the preparation of future teachers. It provides a practical focus on future pedagogical specialities, complementing traditional teaching and learning methods. Undoubtedly, the case study method forms professional competencies, develops skills for participating in discussions, and solving problems, and increases self-confidence. Several suggestions for utilizing the case study method in teacher training were provided: choose cases that match the level of complexity and future speciality; use different types of cases: descriptive, explanatory, video cases; clearly formulate the goals of the case; analyze cases related to relevant topics that aid in developing professional competencies; develop evaluation criteria.

The authors of this article highlight some directions for further research in the area of the research topic. Survey current teachers about the difficulties they face in their profession and develop case studies based on their experiences. This can provide more real-world examples for teacher training. Conduct research comparing the effectiveness of different types of case studies (descriptive, explanatory, video) for developing specific teaching skills and competencies. This can help refine best practices for case study use. Explore optimal formats for online/virtual case study implementation. As the text notes, students preferred shorter written cases and video cases in the online environment. More research could be done on designing effective virtual case studies. Examine using case studies as a tool for continuing professional development of current teachers.

The text focused on preservice training, but case studies may also be valuable for practicing teachers. Investigate longitudinally the impact of case study training on teaching skills. Follow up with teachers trained via case studies versus other methods to assess long-term outcomes. Develop additional case studies that cover a wider range of topics, grade levels, and teaching contexts. The text mentions choosing relevant cases – expand the library of available cases. Research effective facilitation techniques for case study discussions to maximize learning outcomes. Identify best practices for guiding these discussions. Evaluate case study training specifically focused on developing culturally responsive teaching skills. Diversity and inclusion are critical issues for teachers to address.

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Conflict of Interest

None.

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Ефективність методу кейс-стаді у підготовці вчителів у Казахстані

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Анотація

Актуальність. Дослідження є актуальним, оскільки оцінює ефективність методу кейс-стаді у розвитку професійних компетентностей майбутніх учителів у Казахстані, де цей підхід недостатньо використовується. Воно заповнює прогалину в існуючій системі підготовки вчителів, порівнюючи метод кейс-стаді з традиційними підходами до навчання та надаючи докази його потенційних переваг.

Мета. Метою цієї статті є оцінка ефективності методу кейс-стаді у формуванні професійних компетентностей майбутніх учителів, які навчаються за освітньою програмою “Іноземна мова: Дві іноземні мови”. Крім того, дослідження має на меті порівняти ефективність методу кейс-стаді з традиційними методами навчання та апробувати розроблені кейси на практиці.

Методологія. Дослідження спиралося на емпіричні методи для оцінки початкового та кінцевого рівнів професійної компетентності учасників.

Результати. У ході педагогічного експерименту було застосовано метод кейс-стаді для впровадження оновленого змісту курсу “Педагогічна психологія”. Метою курсу є теоретичне і практичне оволодіння знаннями про психологію навчальної діяльності, взаємозв'язок процесів навчання, викладання, навчання і виховання, а також формування наукового психологічного мислення, професійних знань, умінь і навичок майбутніх фахівців у галузі педагогічної психології.

Висновки. Використання методу кейс-стаді у підготовці вчителів покращує професійні компетенції та підвищує мотивацію до навчання. Дослідження показують значне покращення компетенцій у тих, хто навчався за цим методом, порівняно з традиційною освітою.

Ключові слова: вища освіта; майбутні вчителі; професійні компетентності; інтерактивні технології; практико-орієнтованість.