







Diagnostics of primary school teachers' creative potential in Kazakhstan

Assemgul Alsitova¹ 
Gulzhana Kuzembayeva² 
Makpal Zhazykova³ 
Zhumagul Maydangalieva⁴ 



(✉ Corresponding Author)

^{1,2}Baishev University, Aktobe, Republic of Kazakhstan.

¹Email: assemgul_alsitova@bk.ru

⁴Email: maydangalieva@mail.ru

^{2,3}K. Zhubanov Aktobe Regional University, Aktobe, Republic of Kazakhstan.

²Email: kuzembayeva@mail.ru

³Email: makash_k@mail.ru

Abstract

A teacher's creative potential (CP) is recognised as an integrative personality trait that includes the ability to develop innovative teaching ideas, find practical solutions to non-standard teaching tasks, select the most effective methods for engaging in creative pedagogical activities and contribute to the development of students' creativity. The purpose of the study is to identify the primary school teachers' level of CP and to explore barriers to its development. The study employed a mixed-methods research design, analyzing both qualitative and quantitative data collected by means of a survey and interviews with primary school teachers. The literature review has shown that teachers may foster their students' creativity if they have the necessary CP, ample knowledge, resources and tools, apply creativity-development techniques and create an environment that encourages creative collaboration. The survey's results showed that across all age groups and qualification levels, primary teachers' CP development was at a medium level. The interviews revealed the conditions and barriers to CP development such as psycho-emotional and educational factors and resources. The study findings will contribute to further comprehension and improvement of teachers' CP development in higher and vocational education.

Keywords: Barriers to CP development, Creativity, CP, Creative potential, Diagnosis of CP, Primary school teachers.

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Contribution of this paper to the literature

This study identifies the level of creative potential (CP) in primary school teachers and explores barriers to its development. The findings will deepen the current understanding of the barriers and conditions for the teachers' CP development and contribute to further comprehension and improvement of the model of CP development of primary school teachers in higher and additional education.

1. Introduction

Researchers define creativity as a consistent attribute of a person capable of creative activity and developing an original product and new ideas. It is recognised as the most essential quality defining a modern individual's advancement in their field (Amabile & Pillemer, 2012; Bogoyavlenskaya & Susokolova, 2007; Renzulli, 2016; Rhodes, 1961). The development of students' creativity is directly dependent on the creativity of the teacher and his or her value orientations in relation to creativity and creative potential (CP) (Kashapov, 2013; Moroz, 2015; Ryndak, 2012).

The modern teacher must constantly improve his work and develop innovative methods for instructing students considering the constantly changing world in which new approaches to working with children and teaching are appearing on a daily basis. Teachers need creativity because this might be fairly challenging in the modern world. Teachers can use creativity to make learning and raising their students the most exciting, uncommon and interesting process possible which will be greatly appreciated by both parents and students. Creativity should be developed and improved. It directly depends on the teacher's CP. The higher the level of CP, the more opportunities a teacher has both in terms of creating something new and in terms of finding solutions to problems that arise when working with children, preparing classes and conducting them.

In this context, the evaluation of CP among elementary school teachers and the identification of obstacles to their creative development seem relevant. The purpose of the study is to identify the primary school teachers' level of CP and identify barriers to its development. Our findings will deepen the current understanding of the barriers and conditions for the teachers' CP development. The particular significance of the study lies in the fact that the study results may contribute to further comprehension and improvement of the model of CP development of primary school teachers in higher and additional education.

2. Literature Review

Creativity has many definitions and is considered from the perspectives of different sciences (psychology, pedagogy, sociology, management, etc.). According to the generally accepted definition, creativity is the process of creating a new product, idea or solution. Gavin (2003) understands creativity as "the trait of a person to achieve effective results in non-trivial ways as creative people not only act in an unusual way but they always act out of expedient and useful intentions."

According to Williams (1969), the structure of creativity includes two groups of factors: (1) cognitive-intellectual (flexibility, fluency, elaboration and originality of thinking) and (2) personal-individual (the ability to take risks, anticipating the possibility of failure, searching for alternative solutions, willingness to find a way out in difficult situations, the ability to visualize mental images, fantasize and go beyond the boundaries of reality).

Borlikov and Shovgurova (2012) state that an individual's capacity for divergent thinking is also related to the components of creativity. Researchers have been investigating divergent thinking because there is no relationship between intelligence and problem-solving effectiveness. It has been established that problem solving depends on the ability to use the source information in different ways at a fast pace (Efimova, 2011).

Creativity is considered a relatively independent factor of giftedness (Lubart, Mouchiroud, Tordjman, & Zenasni, 2009). Creativity determines a person's willingness to change and abandon stereotypes.

Various aspects of creativity have been researched in pedagogical science: the formation of pedagogical creativity in an innovative educational environment (Nagymzhanova, 2010), the formation of communicative creativity (Tasova, 2018), the development of students' creativity in the educational environment of the university (Mynbaeva, Vishnevskaya, & Galimova, 2016) and the formation of academic creativity of future teachers (Sagdullaev, 2015).

The creativity of teachers is related to the concept of a teacher's CP. CP is based on a combination of creative abilities of a person: divergent (multidirectional, multidimensional) thinking, the ability to overcome stereotypes of thinking, go beyond the "framework" of a given situation or task, flexibility and originality of thinking, the ability to establish distant associations, the ability to see and formulate problems, sensitivity to disharmony (shortcomings), figurative semantic flexibility of thinking and the ability to analyze and synthesize (Degtyarev, 2010).

A teacher's CP is related to integrative education (personal abilities, knowledge, skills, beliefs and attitudes) which serves as the foundation for a teacher's effective creative professional activity. CP is characterized by a higher level of optimization of the ratio of goals, objectives and means (Selivanov, 2020).

The CP of a teacher was researched from various perspectives.

- 1) The structure of teachers' CP (Ryndak, 2016; Zhigitov, 2012).
- 2) Characteristics of the teacher's personality with a high level of CP (Gilmanov & Zelenaya, 2021).
- 3) Principles and conditions for the development of the teacher's CP and its content (Bono, 2018; Havryliuk, 2022; Nikolskaya, 2011; Vershinina, 2020).
- 4) Implementation of CP through creative product development in education (Utemov, Zinovkina, & Gorev, 2023).
- 5) Diagnosis of CP in students and teachers (Todd Lubart, Zenasni, & Barbot, 2013; Sordia, Martskvishvili, & Neubauer, 2019; Tao, Wu, Zhang, & Yang, 2023).

The structure of CP in the scientific literature is presented as a set of (1) resources at the level of personality, conative and environmental resources (Barbot, Besançon, & Lubart, 2015), (2) motivational, substantive and operational components (Ryndak, 2016; Zhigitov, 2012), (3) emotional culture, genetically determined talents, broad general cultural erudition, worldview, imaginative thinking and the ability to model various ways of creative

activity (Mikhailishen, Luchenko, & Pakholchak, 2022), (4) value, cognitive and activity aspects (Zaitseva & Karikh, 2017).

Researchers identify the characteristics of a teacher's personality with a high level of CP. A positive attitude towards profession, the desire to achieve professional mastery, constant self-development, regular self-education and professional development (Vershina, 2020), cognitive, emotional, volitional, motivational, value-semantic, moral and spiritual and reflexive characteristics (Gilmanov & Zelenaya, 2021) were based on the components of the CP structure.

According to the findings of the literature review, we make the assumption that CP is a fundamental characteristic of personality (which is also referred to as a general ability). CP encompasses value-semantic, motivational, intellectual, emotional, volitional and psychophysiological aspects of personality and determines an individual's capacity to solve creative tasks in a variety of contexts and activities. The development and manifestation of CP are facilitated by the principles and conditions of internal and external factors. According to Bono (2018), the principles of CP development are activity, collectivity, personal approach and development. The conditions for the CP development are given below:

- Manifestation and development of activity, independence, inner freedom, introspection and reflection in the process of personal and professional formation and development, design and organization of the educational process based on personal and professional values (Bashina, 2013).
- The presence of positive motivation for pedagogical creativity, the organization of educational creative space and the use of situations of professional creative success ensure subject-subject relations between teachers and students in the process of the creative development of personality (Havryliuk, 2022).
- Joint activity and continuing education (Yurtayeva, 2021; Zabrodina, Kurina, Muryasova, & Shirokova, 2021).

The CP of a person determines the readiness for creative self-realization and self-development, expresses the attitude (position, attitude and orientation) of a person to creativity, and ensures effective interaction of the individual with other people and the productivity of activities.

The CP of a teacher is "a system of personal abilities (ingenuity, imagination, critical mind and willingness to learn everything new) that allow optimally changing the methods of action in accordance with new condition and knowledge, skills, beliefs that determine the results of activity (novelty, originality, uniqueness of the subject's approaches to the implementation of activities) ultimately encouraging the personality towards creative self-realization and self-development" (Ryndak, 2012).

According to Martishina (2012), a teacher's CP is a part of his or her lifelong development and advancement of personal and professional potential as well as a collection of opportunities for creative problem-solving pertaining to a variety of duties involving the growth of students, the management of the educational process and professional collaboration.

Mardanova (2005) shows that the CP of personality is the highest form of human mental activity. One characteristic that sets a person with a high CP apart from others is creative and intellectual initiative as well as an active lifestyle. He is able to generate new ideas for solving problematic issues. A creative person has an original approach to solving a problem situation that has arisen in the educational process. The creativity of a person helps to develop in the conditions of self-regulation of learning opportunities; a creative person is characterized by a research need that allows being in a state of constant search for the unknown.

The CP of a teacher allows them to generate new pedagogical ideas, search for practical solutions to non-standard pedagogical tasks and choose the most productive strategies of creative pedagogical activity (Stepanenko, 2015). The factors of CP development include both external (the influence of the socio-economic environment, the peculiarities of the educational institution, the pedagogical tasks of the labor collective, etc.) and internal (the teacher's need for creative activity, the motivation of creativity, the spiritual and value sphere of his personality).

Creative pedagogy is a system that includes three interrelated elements: creative teaching, creativity training and creative learning (Moroz, 2015). These three elements complement each other and a stimulating atmosphere for the development of creativity is reached through the interaction between the innovative and effective teaching of a creative teacher and the creative learning of an active student. The teacher's creativity and his value orientations towards creativity and CP have a direct impact on the development of the students' creativity.

Thus, it is possible for students to improve their creativity if the teacher possesses creative potential, possesses sufficient information, resources and tools, applies methods for developing creativity and creates an environment where students may interact creatively.

3. Methodology

A mixed-methods research design with the collection of both qualitative and quantitative data was employed to identify the primary school teachers' level of CP and explore the barriers to its development. The following research questions were formulated for the study:

RQ1. What is the primary school teachers' level of CP?

RQ2. Does the level of the teacher CP depend on their age, work experience and qualification?

RQ3. What are the conditions and barriers to the development of the teachers' CP?

We hypothesize that the level of teachers' CP does not depend on their age, work experience or qualification category, since it is a personal property of a teacher, the development of which depends on internal and external conditions and barriers to professional activity.

An online survey in Google Forms was conducted to assess the teachers' CP and the working environment among primary school teachers. 112 primary school teachers from the Aktobe region participated in the study (see Table 1).

Table 1. The participants' demographic characteristics (n=112).

Participants' demographics		N	%
Locality			
	City	51	45.5
	Village	61	54.5
Type of educational institution			
	Secondary school	81	72.3
	Innovative school	2	1.8
	Primary school (Nursery, kindergarten)	2	1.8
	Profile school	2	1.8
	Training center	2	1.8
	School (Nursery, kindergarten)	2	1.8
	Gymnasium school	15	13.4
	Lyceum school	6	5.3
Age			
	20-30 years	19	17
	31-40 years	19	17
	41-50 years	35	31.2
	51-60 years	39	34.8
Work experience			
	Less than a year	3	2.7
	1-5 years	20	17.8
	6-10 years	13	11.6
	11-20 years	19	17
	21-30 years	23	20.5
	More than 30 years	34	30.4
Position (Qualification)			
	Teacher	24	21.4
	Teacher-moderator	25	22.3
	Teacher-researcher	35	31.3
	Teacher-master	1	0.9
	Teacher-expert	27	24.1

Three sets of questions made up the survey questionnaire that was modified from Nikiforov, Dmitrieva, and Snetkov (2003):

1. My personality (personality traits and psycho-emotional state that influence the manifestation of creativity).
- 2) My approach to problem solving (creative abilities of the individual, overcoming stereotypical thinking and a creative approach to problem solving).
- 3) My working environment (optimal conditions for creative work).

The teachers' CP was evaluated by the sum of points in three blocks. As a result of the survey, the level of CP of primary school teachers was determined in accordance with the three levels (Kairgozhin, Kuzembayeva, Maydangalieva, Bakhtiyarova, & Mugauina, 2023; Kuzembayeva, Kuanyshbayeva, Maydangalieva, & Spulber, 2023) having the criteria given below:

High level: Teachers demonstrate the ability to encourage creativity in others, a creative approach to solving problems, the ability to support others in solving problems, establish optimal conditions and create an environment for successful creativity.

Medium level: Although CP is fully developed, some personality qualities and emotional states can prevent it from constantly presenting. A teacher relies on past experience to solve work assignments which may result in standard solutions.

There are some barriers in the working environment that prevent the disclosure of CP.

Low level: CP is suppressed by certain personality traits or feelings. The approach to problem solving is standard creativity is lacking. The working environment does not encourage creative thinking. There is emotional tension and difficulties in demonstrating creativity.

Ten primary school teachers were interviewed to assess the conditions and barriers to CP development. The qualitative content analysis of interview responses was employed to answer the stated research questions.

4. Results and Discussion

The primary school teachers' CP level indicators were identified through the survey presented in Table 2.

The results of the first block "personality" analysis revealed that all respondents have a medium level of CP development, i.e., CP is sufficiently developed but not displayed due to some personality features of a teacher. The results of the second block "approach to problem solving" also showed a medium level of CP in all respondents indicating that the approach to problem solving used by teachers is often inflexible and can lead to standard solutions that depend more on their identical previous experiences. The third block "working environment" results were also at the medium level indicating some difficulties in showing creativity in the workplace (see Figure 1).

Teachers of different ages participated in our survey but all of them had a medium level of CP in all three sets of questions. This finding is consistent with previous research by Rudkevich (1994) and Barysheva (2023) who found that there is no direct relationship between age and the level of creativity development. Age does not limit creative possibilities but it does change the qualitative outcomes of creative activity. The results of the first block (personality) in teachers aged 20-30 were 5-7 points higher than the respondents of other age categories. We explain this by noting that younger teachers are more focused on professional formation, emotionality and distinctiveness in their professional development and have a wide range of interests in the pursuit of professional

technologies and algorithms whereas older teachers' personal traits are more characterized by the stabilization of professional stereotypes and the accumulation of professional experience (see Figure 2).

Table 2. Indicators of the primary school teachers' CP (n=112).

Categories	Personality	Approach to problem solving	Working environment	Overall level of CP
Locality				
City	54.47	49.86	50.72	155.05
Village	53.45	45.93	49.98	149.36
Age				
20-30 years	59.89	48.05	51.21	159.15
31-40 years	54.42	46.68	51.57	152.67
41-50 years	52.05	49.22	49.85	151.12
51-60 years	52.92	49.84	49.69	152.45
Qualification				
Teacher	56.4	47.75	50.95	155.1
Teacher-moderator	54.88	47.56	50	152.44
Teacher-researcher	52.58	49.77	49.11	151.46
Teacher-master	52.11	48.23	50.88	151.22
Teacher-expert	52.14	48.62	51.33	152.09

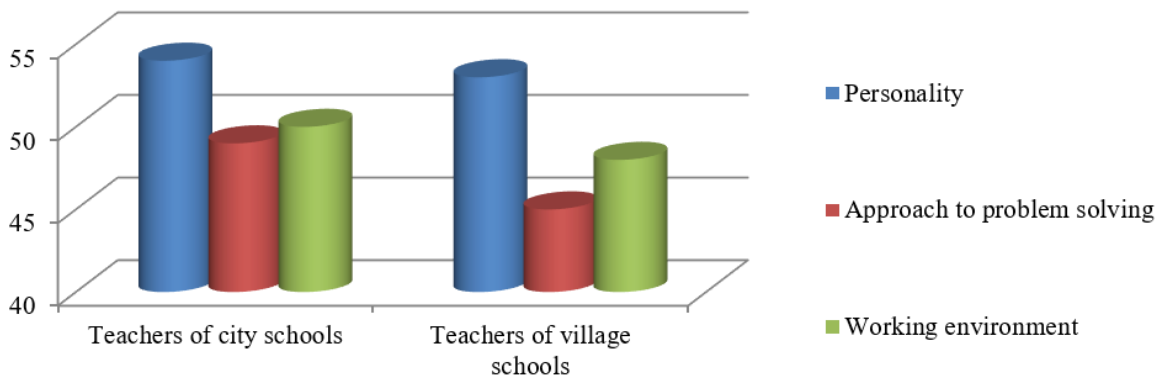


Figure 1. The CP levels of primary school teachers of different locality according to three blocks.

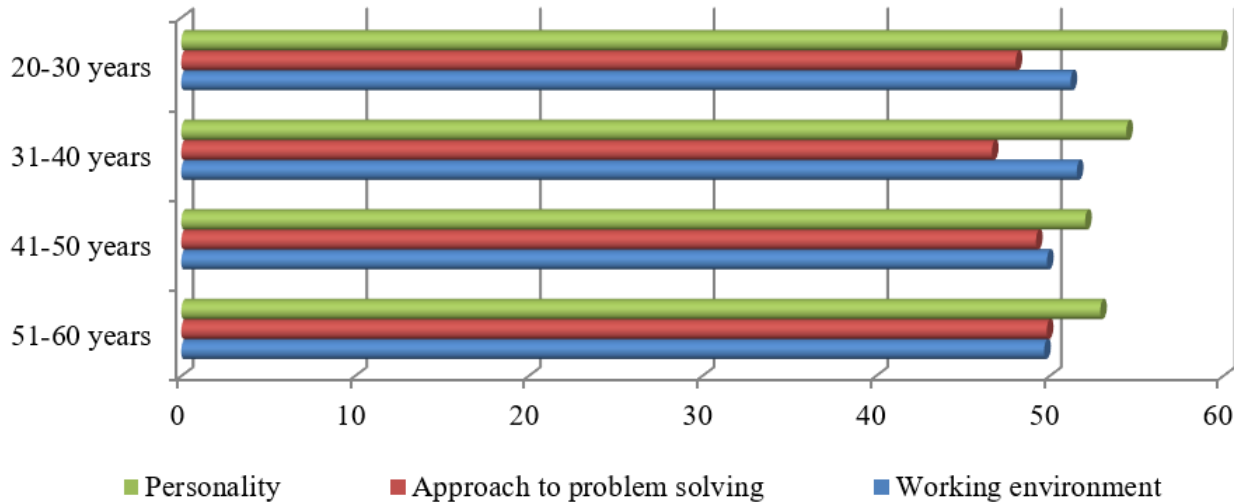


Figure 2. The CP levels of primary school teachers of different age categories according to three blocks.

The results of the second block "approach to problem solving" as depicted in the figure suggest that respondents across all age groups had relatively low indicators. This indicates a tendency towards rigidity of thinking, standard problem solving and relying more on past experience. The term "cognitive inflexibility" in psychology refers to the inflexibility of one's thought and refers to an internal resistance to other approaches to problem-solving or to the activities themselves.

The survey results demonstrated the average level of CP development in teachers across all qualification categories despite the fact that teachers of different qualification categories participated in the survey (see Figure 3).

The level of the teachers' qualification category was not proportional to their age or teaching experience. For example, among 24 people with the basic qualification level (teacher), the number of teachers aged 20-30 years is 15, 31-40 years is 4, 41-50 years is 5 and the number of teachers with teaching experience of 1-5 years is 15, 6-10 years is 5, 51-30 years is 1 and less than 1 year is 3 people. Consequently, the CP of teachers is independent of their category of qualification.

The difficulties in the manifestation of teachers' CP resulted from the survey with previous research (Ilyin, 2012) indicating the barriers to creativity such as the fear of expressing opinion, appearing ridiculous, the conscious and unconscious suppression of non-standard ideas, stereotypical thinking (the desire to solve typical tasks in a standard and proven way), ill-conceived and inadequate solutions, self-doubt and an insufficient level of planning and organization of their own and students' activities. The interview results confirmed these findings. When solving new and unfamiliar tasks that require a creative approach, 80% of teachers experience anxiety, insecurity, confusion and uncertainty.

"I worry at first, but based on past experience, I calmly complete the task" (S10).

"If the deadlines for completing the task are not tight and there is no hurry, then I am calm about such tasks" (S8).

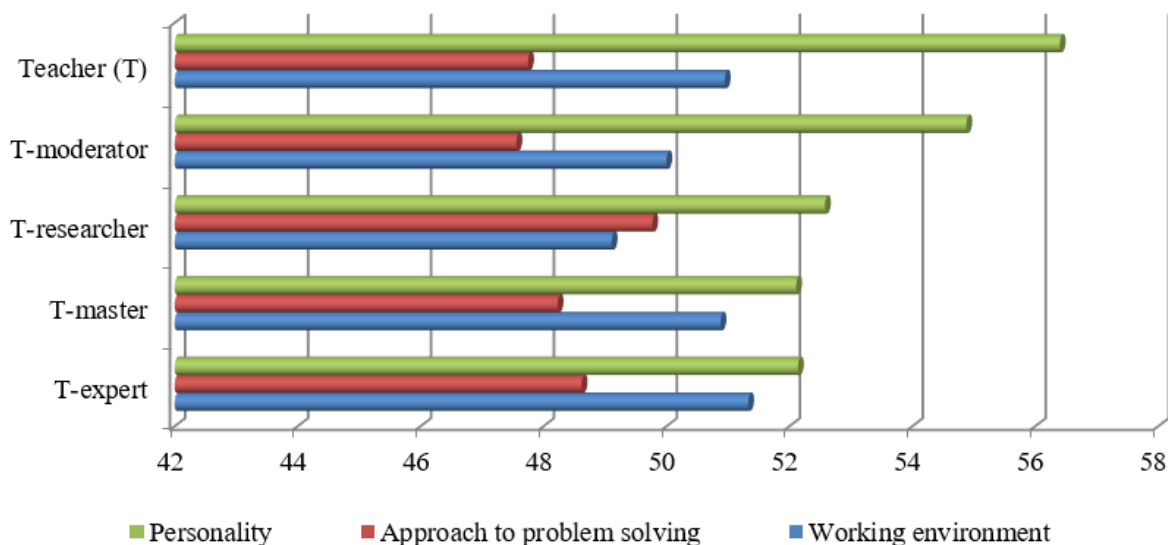


Figure 3. The CP levels of primary school teachers of different qualifications according to three blocks

The interviewees' responses confirm that CP development is influenced by external conditions such as psychological security, freedom and emotional factors. The environment needed for teachers to create and improve is perceived as a favorable psychological climate, moral support from colleagues and management and the availability of a rich material and technical base.

"I consider the conditions of support, external motivation and encouragement from the management when work on a project is carried out together, with mutual assistance to each other and there is the exchange of ideas to create a favorable creative environment for work" (S7).

"I am motivated for creativity by a good mood" (S1).

"I can work productively when all the necessary electronic resources are available to me (multimedia teaching tools, software, a well-equipped office)" (S8).

These results corroborate the findings of previous studies showing that creativity is stimulated by an environment in which there is a trusting, active and creative interaction of teachers and support from the working group (Ramos, Figueiredo, & Pereira-Guizzo, 2018) and emotional and motivational issues are addressed (Zakirova & Purik, 2016).

The interview results on teachers' approaches to problem solving showed their misunderstanding of the issues of creativity and its development. The teachers were willing to share their experience in developing students' creativity indicating the use of various teaching methods such as games, practical tasks, brainstorming and tarsia and online platforms such as Word Wall, Prezi, Mentimeter and Socrative. However, the fact that these methods and tools are mainly used to test the knowledge learned in the lesson and to get feedback, supports and evidence from the previous observation of Barysheva (2023) indicates the insufficient awareness and lack of consensus about what creativity is and how it differs from intelligence and learning ability.

"I prefer large or mini-group activities where tasks are performed cohesively by the method of collective creativity and each participant can improve their individual skills. I am also putting into practice a feedback diary that allows students to evaluate their actions and to carry out self-analysis" (S2).

Teachers face difficulties when selecting tasks for the development of students' creativity.

"Individual characteristics and different levels of students' training require a selection of individual tasks and conducting an additional search for educational material. The creative abilities of students manifest themselves in different ways, sometimes there is not enough practical experience but the advice and recommendations for colleagues at work, methodologists and internet portals help out" (S4).

"Creative tasks in the textbook are insufficient. I need to look for additional didactic material and creative tasks" (S2).

Teachers highlight the importance of updating educational games and tasks especially in the first two years of school and equipping the teaching process with technical tools.

"Tasks are mainly aimed at assessing knowledge whereas I would like to fill the fund of tasks for the development of the child's oral spontaneous speech on any topic and tasks for problem solving related to everyday life" (S7).

"Sometimes the unavailability of information and communication technologies, difficulties in implementing ideas through learning platforms and the insufficient development of digital programs complicate the process" (S3).

The teachers indicated that they regularly take professional development courses, scientific and methodological seminars, online training and lectures by invited researchers that address computer and digital literacy, distance learning, educational planning, achieving and evaluating learning outcomes, inclusive education etc. regarding the conditions for the development of teachers' CP. However, according to the previous research conducted among Kazakhstani teachers (Kariev, Sapieva, & Topanova, 2022), the need for courses on the development of managerial competencies and personal and professional growth has been identified.

The question of building a creative environment for students stimulates interest among the interviewees.

"An important component of the creative environment is the pedagogical skills of a teacher, his model of behavior and his approaches to solving creative tasks" (S10).

"I would organize a club of creative ideas among active students as a creative educational environment. In this club, students would exchange ideas, complete project assignments, write essays, practice oratory and theatrical productions, etc. I think the success and achievements of the club members would motivate other students to participate" (S2).

“In a creative educational environment, orientation towards each other (between students, between a teacher and students) is necessary and a healthy competition between students should be stimulated by a teacher” (S3).

Joint educational activities aimed at creating a common and unified product by different people where cooperation as well as competition are perceived by the teachers proved to be effective in creating conditions for creativity in previous studies by Andreeva (2001) and Attle and Baker (2007). For example, competition can be represented as opposition, competition and cooperation can contribute to performance, cooperation and co-creation.

Teachers face challenges related to the insufficient conditions for a creative educational environment.

“In a creative educational environment, all the necessary material and electronic resources should be at hand: tablets, computers, interactive whiteboards, printers, accessible Internet and online learning resources. A convenient and comfortable office with the ability to transform the learning space, move furniture, darken the room and zone the space is needed” (S1). The study's findings enabled the classification of the following conditions and barriers to the medium level of CP development among primary school teachers that are independent of their age, job experience or qualifications:

- Psycho-emotional barriers (difficulty regulating the emotional state).
- Educational barriers (lack of courses that take into account the professional needs and interests of teachers. characteristics of the students' contingent leading to the use of individual approaches to teaching students with different levels of training and abilities).
- Resource barriers (insufficiency of educational, methodological and technological resources for developing students' creativity; the insufficient level of creative environment development for a favorable and creative atmosphere, mutual communication, exchange of creative ideas and creative search).

5. Conclusion

The current research allowed us to conclude that the CP of a teacher directly affects his personal and professional growth and the development of students' creativity, since the teacher's CP is determined by the ability to generate new pedagogical ideas, to search for practical solutions to original and non-standard pedagogical tasks, to choose the most productive strategies of creative pedagogical activity and to encourage as a result, creative self-realization and development.

However, the survey revealed the medium level of its development in teachers of different ages, qualification categories and work experiences despite the personal and professional significance of CP for the teacher. This indicates that the problem covers not so much the professional qualities of teachers as psychological, personal and environmental factors of teachers' professional activity. The conditions and barriers to the development of CP as perceived by teachers include psycho-emotional and educational factors and resources.

vocational education. The study findings will contribute to further comprehension and improvement of the teachers' CP in the system of higher and

6. Limitations and Future Implications

The findings of this study have some limitations. The research data was collected from a self-report questionnaire and interviews with primary school teachers. Self-reported data is limited by the fact that it can rarely be independently verified and can contain several potential sources of bias such as exaggeration or understatement and social desirability bias, when respondents are prone to give answers that they consider to be the most socially acceptable ones. However, comparing and summarizing the results based on different sources increases the generalisability of the results. The results of the survey were consistent with the data from the interviews.

Despite these limitations, the study has provided a deep understanding of the barriers and conditions for primary school teachers' CP development. The study results may contribute to the comprehension and improvement of the model of CP development of primary school teachers in higher and additional education.

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