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Psychological and pedagogical model of supporting the development of metacognitive abilities of secondary school students

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Abstract. This article presents a psycho-pedagogical model of support for the development of metacognitive abilities of students in general education school. This model is specifically designed taking into account the principles of renewed education in Kazakhstan. It includes a combination of strategies and methods based on modern educational canons to assist school students in developing the necessary skills to succeed in this new learning environment. The significance of this model lies in its practical application and potential impact on the education system. By exploring the effectiveness of the Psycho-pedagogical Model for supporting the development of metacognitive abilities of learners, the model aims to provide valuable information about methodologies that can effectively support the development of metacognitive abilities in middle school students: from seventh to ninth grade. This is especially relevant in the context of the developing educational environment of Kazakhstan, where there is a shift away from traditional approaches. The purpose of this study is to assess the effectiveness of the model of psychological and pedagogical support in the development of metacognitive abilities of school students in the conditions of renewed education. The study includes 184 pupils of 7-9 grades from one of the schools in Kazakhstan. To conduct the study, a model of psychological and pedagogical support for schoolchildren was developed, the purpose of which is to develop their metacognitive abilities in the conditions of renewed education in Kazakhstan. The main tool for assessing the effectiveness of the programme is a specially designed Metacognitive Abilities Assessment Questionnaire. This study presents the results of the initial stage of the research.

Key words: metacognition, metacognitive abilities, updated content of education, secondary school students, model, self-regulation, critical thinking.

Introduction

In the context of a constantly changing educational paradigm in Kazakhstani education, Kazakhstan has embarked on a path of transformation aimed at updating its education system (Abylkassymova, 2020) [1]. By embracing the principles of active learning, collaborative environments, differentiated learning, interdisciplinary connections, and the integration of information and communication technologies (ICT), Kazakhstan strives to provide school students with the skills and competencies needed to succeed in the twenty-first century (ICFED-Kazakhstan, 2023) [2]. The transition from a traditional pedagogical approach to an approach based on updated educational principles represents a shift towards the development of independent and critical thinkers, which recognizes that memorization of facts and passive learning are no longer sufficient to prepare students to face the complexities of the modern world (Kropachev et al., 2020) [3]. Instead, the emphasis is now on active learning, where school students are encouraged to take ownership of their education, engage in collaborative activities, and explore interdisciplinary connections (Daradoumis & Arguedas, 2020) [4]. This paradigm shift is not simply a reflection of educational trends, but a deliberate attempt to equip school learners with the skills, knowledge, and metacognitive abilities needed to thrive in the global knowledge system (Pieschl et al., 2021; Teng & Zhang, 2021) [5].

Metacognitive abilities, including self-awareness, self-regulation, and reflective thinking, are increasingly recognized as vital components of successful learning as these skills enable school students to understand their own learning processes, adapt strategies, and learn more deeply (Chen & McDunn, 2022; Kuhn, 2022). [6] In the context of the updated education system of Kazakhstan, the development of these abilities becomes even more important - the active and collaborative nature of the system requires that school students be more independent, reflective and adaptable (ICFED-Kazakhstan, 2023) [2]. However, developing these skills in school students is a complex task that requires specialized psychological and pedagogical approaches (Perry et al., 2019). Moreover, despite the recognized importance of metacognitive abilities, significant challenges remain in developing these skills within an updated education system (Cromley & Kunze, 2020) [7].

Today, the problem of using a metacognitive approach to develop students' metacognitive abilities as the basis for learning effectiveness and learning success in the context of updated education is becoming particularly relevant. According to the Concept for the Development of Education of the Republic of Kazakhstan until 2025 in paragraph 5.4.2. Modernization of the content of secondary education "... the content of secondary education will be aimed at the development of academic knowledge and functional literacy, the formation of global competencies of a wide range" [8]. "Starting from 2024, a gradual transition to 12-year secondary education is planned. The content of a 12-year school is determined on the basis of personal-activity and competency-based approaches, a value system that takes into account the characteristics of a technospheric person who will live in a rapidly changing and high-tech world, as well as modern trends in the development of 12-year education. The State Educational Standard for 12-year schools will define a graduate model for each level of secondary education, including scientifically based subject and meta-subject competencies, indicators of personal qualities and soft skills [8].

A modern school, educational standards and curricula will be aimed at developing flexible skills of the 21st century in students. A secondary school graduate with a wide range of such skills will be motivated, have universal competencies, developed skills of adaptability, teamwork and critical thinking, use the capabilities of artificial intelligence in his work, and be ready for technological changes and employment.”

All of the above emphasizes the importance of organizing psychological and pedagogical support for the development of students’ metacognitive abilities as the main factor in the success of learning in the conditions of updated education.

The relevance of organizing psychological and pedagogical support for the development of metacognitive abilities of students in general education organizations can be emphasized by the following regulatory legal acts: Law of the Republic of Kazakhstan “On Education” (as amended and supplemented as of 01/01/2022) [9], Concept for the development of education of Kazakhstan Republic until 2025, National project “Quality education “Educated Nation” [10], Instructional and methodological letter “On the features of the educational process in secondary education organizations of the Republic of Kazakhstan in the 2021-2022 academic year” (recommended by the Scientific and Methodological Council of the National Academy Education named after Y. Altynsarın (No. 5 protocol of May 13, 2021) [11].

History

The key figure of metacognitivism as a separate branch of psychology is John Flavell. Most authors believe that his work opened up the metacognitive direction in modern psychology [12].

Metacognitive processes, which represent individual knowledge about one’s own cognitive processes and the results of cognitive activity, performing the function of active control, regulation and organization of cognitive processes in achieving specific goals, are studied by both domestic and foreign psychologists (USA, Canada, Australia, Japan, etc.). Prominent researchers in metacognitivism are P. A. Alexander, R. Atkins, J. Borkowski, A. L. Brown, J. C. Campione, M. A. Dirkes, D. Dunloski, J. H. Flavell, R. Garner, R. Kluwe, J. R. Leonesio, S. Madigan, J. Metcalfe, P. Murphy, T. O. Nelson, L. M. R. Perkins, M. Pressley, Reder, A. P. Shimamura, E. Tulving, B. Salomon, A. Shimamura, W. Schneider, A. V. Karpov, E. A. Sergienko, I. M. Skityaeva, M. A. Kholodnaya [13]. In domestic and foreign psychology, metacognitive processes are considered as a factor in the success of a subject’s cognitive activity and determine its productivity.

In our opinion, in addition to acquiring new knowledge, skills and possessions, the education system in a secondary educational institution should focus on the development of metacognitive abilities as the main intellectual resource of the individual. Developed metacognitive abilities provide a significant increase in the productivity of mental activity, provide high-quality control over one’s mental processes, and also play an important role in the process of their regulation.

R. Parkins and B. Salomon note that “metacognitive abilities can be formed on the basis of any area of knowledge in which the subject is sufficiently competent [14]. In order to achieve the highest level of professionalism in any field, to solve professional problems the use of metacognitive control over the course of their solution is being required. Also, for

successful learning it is necessary to develop the skills of self-reflection, which provides an understanding of what is happening in the mind when reflecting on one's cognition and its specific characteristics. Possessing developed metacognitive abilities allows schoolchildren to manage their behavior and, if necessary, use metacognitive strategies to solve various problems and solve them consistently, which ensures the best adaptation."

Thus, metacognitive abilities are an important category of the educational process, and they are closely interconnected with educational activities, which in a higher educational institution are based on a certain amount of independent work and involvement in educational activities. A certain level of development of metacognitive abilities is a prerequisite for successful educational activities, providing control over the course of one's mental processes, the choice of the main goals of activity in situations of uncertainty, and is also a resource that ensures the best adaptation in solving educational and personal problems.

An analysis of the works of Kazakh scientists revealed insufficient development of this area of research. However, individual components of metacognition have been studied through research on critical thinking, intellectual functioning, and cognitive processes. G. Bekakhmetova and A. Korzhumbayeva, M. O. Kabysheva, A. I. Niyazbaeva considered the issues of studying critical thinking; A. Zhumabaeva studied the issues of teaching disciplines through a meta-subject approach; development of intellectual abilities of students were considered by A.K. Mynbaeva, V.T. Tikhomirova, A.V. Vishnevskaya [13].

Formulation of the problem

Currently, the department of "Personal Development and Education" NAO "Toraighyrov University" is actively working on the development of metacognitive abilities of students, implemented jointly with secondary schools of Pavlodar in the process of professional practice.

The main purpose of our study is to assess the effectiveness of the developed by us model of psychological and pedagogical support aimed at the development of metacognitive abilities of schoolchildren in modern conditions of educational school. Our task is to identify how this model affects the improvement of the educational process and contributes to a deeper and more conscious involvement of schoolchildren in the educational process. The scientific significance of our study lies in providing empirically substantiated data on the impact of our model of psychological and pedagogical support on the development of metacognitive abilities of schoolchildren.

The article provides a deeper understanding of how the Psycho-pedagogical model of support for the development of students' metacognitive abilities can be successfully integrated into the school learning process, taking into account the modern requirements of updated education. It also provides valuable recommendations for educators and educational institutions on how to improve educational processes and promote the all-round development of school students. The following key task was identified as part of the research at the stage of implementation of the Psycho-pedagogical model of support for the development of students' metacognitive abilities:

1 To conduct a comparative analysis between the control and experimental groups to assess the effectiveness of the model of psychological and pedagogical support developed by us in

the development of metacognitive abilities of school students in the conditions of renewed education. For this purpose, the results of pre-tests will be analysed.

Research methods

The proposed model of psychological and pedagogical support for the development of students' metacognitive abilities can be used to work with students both at school (school psychologists, teachers) and in colleges and universities during professional internships. The proposed model will include a diagnostic apparatus, a proprietary program, as well as practical recommendations for participants in this process (students, parents, school, Department of Education, Ministry of Education of the Republic of Kazakhstan).

In order to understand the objective regularities underlying the process of developing metacognitive abilities of students in the educational process, it is necessary to have a clear understanding of the psychological and pedagogical model of support for the development of metacognitive abilities of general education students.

At the planning stage, the main goals and models were defined with a focus on creating conditions for the development of metacognitive skills, such as the ability to analyse, plan and evaluate their own learning activities. In the process of developing the model, learning modules centred on active learning were created, including group projects, individual assignments, and the use of interactive technologies. The model was tested and verified before being implemented in the study, and pilot tests in schools allowed to collect feedback from participants and to make refinements for improvement.

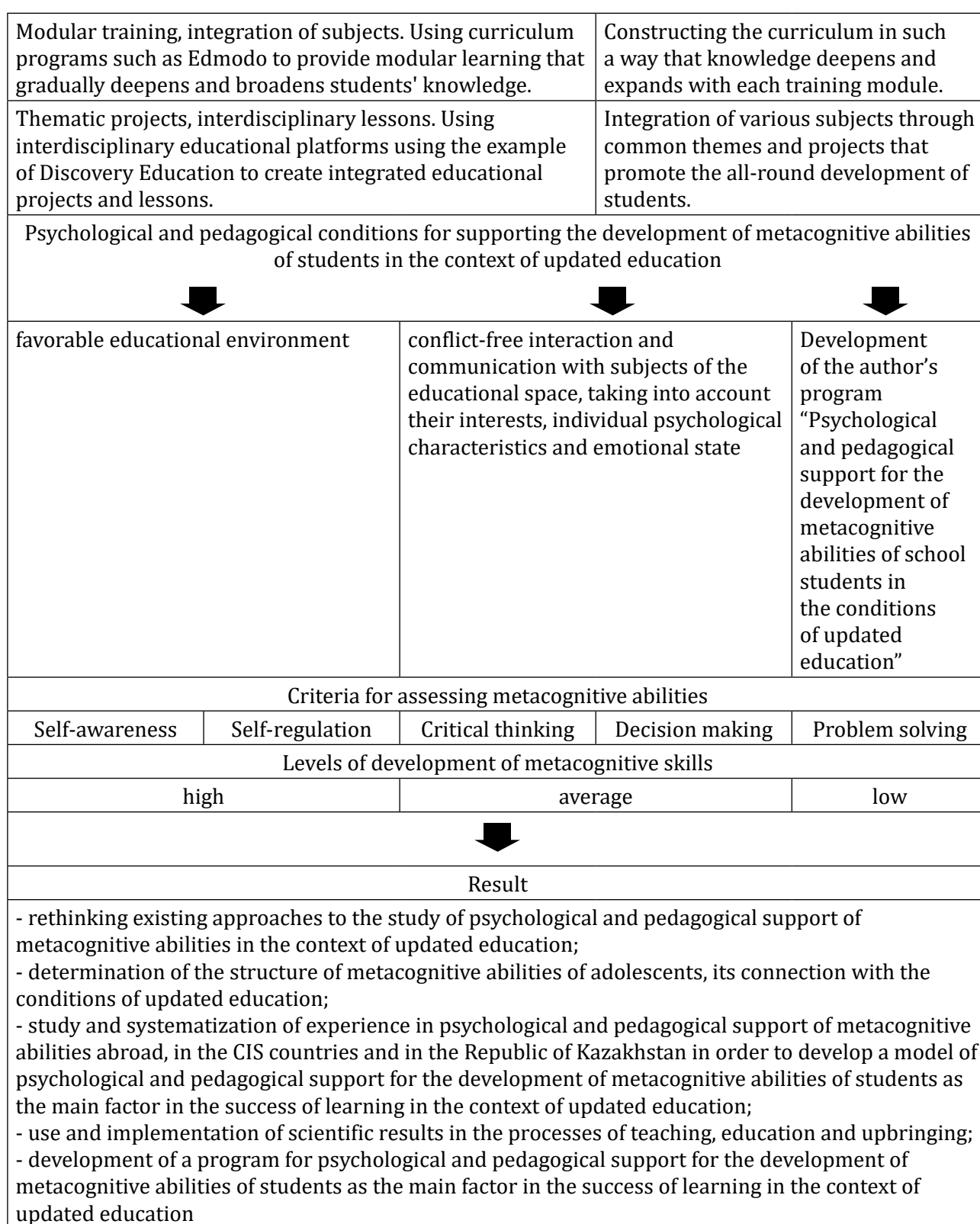
Upon completion of the testing and improvement stage, the model was successfully implemented in educational institutions. The key point of this process was the training of teachers who were to implement the model "Psychological and pedagogical support for the development of metacognitive abilities of school students". For this purpose, a series of trainings and seminars were organised to familiarise teachers with the methods and approaches included in the model, as well as to develop practical skills in working with students.

As a result, the model aims to develop the metacognitive abilities of school learners, fostering their active involvement in the educational process and improving learning outcomes. It provides school learners with the necessary tools to better understand and manage their own learning processes and strategies, which is essential for successful learning. Due to text and copyright restrictions, we present below a description of the model in Figure 1.

| TARGET COMPONENT | | |
|--|--|--|
| Goal: theoretical substantiation of the effectiveness of the model of psychological and pedagogical support for the development of metacognitive abilities of students as the main factor in the success of training in the conditions of updated education. | | |
| ↓ | ↓ | ↓ |
| Approaches: | Patterns: | Principles: |
| - competence-based; | 1) dependence on a set of general principles for determining the goals | - unity of intellectual and emotional components of education; |

| | | | | |
|--|--|---|---|--|
| <p>- personal-activity;</p> <p>- systemic;</p> <p>- meta-subject</p> | <p>of education, selecting the content of education, organizing the educational process and assessing educational results;</p> <p>2) dependence on methodological orientation in pedagogical activity, which allows, by relying on a system of interconnected concepts, ideas and methods of action, to ensure and support the processes of self-knowledge, the realization of the very personality of students;</p> <p>3) the dependence of external and internal activities, the activities of the teacher and students;</p> <p>4) dependence on the methods, forms and means used, teaching generalized ways of working with any subject material: concept, diagram, model, etc. and is related to life situations. Features of the implementation of a meta-subject approach or activity-based (thought-activity) pedagogy</p> | <p>- connection between theory and practice;</p> <p>- psychological comfort;</p> <p>- variability;</p> <p>- advanced training</p> | | |
| <p>INFORMATIONAL AND CONTENT COMPONENT</p> | | | | |
| <p>psychological and pedagogical conditions for supporting the development of students' metacognitive abilities</p> | <p>knowledge about the essence of using teaching methods, forms and strategies</p> | <p>analysis, synthesis, abstraction, ability to generalize and comprehend</p> | <p>levels of metacognitive activity of school students</p> | <p>development of metacognitive abilities of school students</p> |
| <p>ORGANIZATIONAL AND ACTIVITY COMPONENT</p> | | | | |
| <p>Stages of organizing the development of metacognitive abilities of school students</p> | | | | |
| <p style="text-align: center;">↓</p> | | | | |
| <p>Conditions for psychological and pedagogical support for the development of students' metacognitive abilities</p> | | | | |
| <p>theoretical training</p> | <p>practical training</p> | | <p>psychological training</p> | |
| <p>Differentiation of learning - an individual approach to learning.</p> | <p>Active learning - stimulating the active participation of students in the learning process.</p> | | <p>Development of moral and spiritual qualities - education of values and personal qualities.</p> | |

| | | |
|---|--|---|
| Formative assessment - assessing students' progress. | Spiral learning - gradual deepening of knowledge. | Collaborative environment -development of teamwork skills. |
| ICT integration - the use of technology in teaching. | Cross-cutting topics - creating interdisciplinary connections. | Dialogue learning - supporting open communication. |
| Stages of implementation of the psychological and pedagogical model of supporting the development of metacognitive abilities of secondary school students | | |
| Goal of the 1st stage - introductory - metacognitive readiness | Goal of the 2nd stage - theoretical-cognitive - intensive introduction of meta-subject processes | Goal of the 3rd stage - practice-formative - development of metacognitive abilities of students |
| CONTROL AND EVALUATION COMPONENT | | |
| Methods | | Tools |
| Project method, role-playing games. Using interactive educational platforms such as Kahoot to create quizzes and gamified learning activities. Application of the Project Based Learning (PBL) platform for the development and implementation of educational projects. | | Implementation of projects to solve real problems, conducting educational role-playing games to develop decision-making skills. |
| Group discussions, joint research. Use Google Classroom and Microsoft Teams to organize student collaboration on projects and documents. | | Organizing discussions on current topics, group scientific projects, where each student makes his or her contribution. |
| Individual tasks, adaptive technologies. Using adaptive learning platforms, Khan Academy, to provide assignments that are tailored to each student's level of knowledge. | | Creation of tasks with different levels of complexity, use of adaptive educational programs. |
| Electronic resources, training programs. For example, the inclusion of educational applications such as Duolingo for learning foreign languages, and Tinkercad for teaching the basics of 3D modeling. | | Introduction of interactive educational materials, use of educational applications and platforms. |
| Debates, round tables. Using the TED-Ed platform to discuss and analyze ideas presented in educational videos. | | Organizing debates on problematic issues, holding round tables with experts and students. |
| Moral and ethics lessons, extracurricular activities. Using resources such as Character.org to develop lessons and activities aimed at building character and moral values. | | Conducting thematic classes on ethics, organizing socially significant events and projects. |
| Portfolio, self-esteem. Using the Seesaw platform to create student portfolios, including their work, reflections and assessments | | Maintaining a portfolio for students to track their progress, self-assessment of their achievements and progress. |



Picture1. Psychological and pedagogical model of supporting the development of metacognitive abilities of secondary school students

Each of these metacognitive assessment criteria was integrated into the educational process in order to create a comprehensive and effective educational environment that promotes the development of metacognitive abilities in school students and their general, personal and spiritual growth. This process was carried out according to the protocol and the model itself, in which all aspects were taken into account. A specially designed Metacognitive Abilities Assessment Questionnaire, which includes five subscales, was used as the main tool to assess the effectiveness of the model:

1 subscale – Self-awareness: awareness of one's own strengths and weaknesses in the learning process, understanding of preferred learning styles and strategies.

2 subscale – Self-regulation: the ability to set learning goals, plan and organise the learning process, as well as control and adjust it in accordance with the tasks and requirements.

3 subscale – Critical Thinking: the ability to analyse information, distinguish facts from opinions, evaluate arguments and evidence.

4 subscale – Decision Making: the ability to choose the best strategies and solutions in different learning situations.

5 subscale – Problem Solving: the application of logical thinking to find solutions to complex problems and the ability to adapt to new and changing conditions.

The study involved pupils from one of the schools in Kazakhstan where the model "Psychological and pedagogical support of metacognitive abilities development of school students" was implemented. The total number of pupils included in the sample was 184 from grades 7-9 (mean age $M=14.40$; standard deviation $SD=0.81$). Pupils were studied in parallels, with one of grades 7, 8 or 9 randomly selected as the control group and the other grade becoming the influence group. More detailed information about the participants is presented in Table 1.

Table 1

Data of respondents who took part in the experiment

| Group | class | Total | Mean age (M) | SD |
|--------------------|-------|-------|--------------|------|
| control group | 7 | 32 | 14,42 | 0,84 |
| | 8 | 29 | | |
| | 9 | 31 | | |
| experimental group | 7 | 30 | 14,38 | 0,79 |
| | 8 | 31 | | |
| | 9 | 31 | | |
| TOTAL/MEDIUM | | 184 | 14,40 | 0,81 |

Students in the pilot study schools were informed. All requirements of confidentiality and privacy were met with respect to the participants.

The first phase of the metacognitive ability assessment questionnaire, Experiment 1 was conducted in September 2023. Participants in the experiment completed the metacognitive ability assessment questionnaire using Google Forms. The control group was trained in standard time and standard programme, while the experimental group was exposed to the implemented model of psychological and pedagogical support of metacognitive abilities development.

The control group was assisted by psychologists and specially trained teachers in different subjects of the general education curriculum. After training with the principles and components of the model of psychological and pedagogical support of metacognitive abilities development, in May 2024 a control cut-off will be conducted by re-completing the questionnaire of metacognitive abilities assessment of school students.

The first stage of the study was to evaluate the effectiveness of the model of psychological and pedagogical support for the development of metacognitive abilities of school students in the conditions of renewed education. This was achieved by comparing the pre-test results between the control and experimental groups. In addition, statistically significant differences of intra-group indicators were determined using the Wilcoxon criterion for the control and experimental groups. For ease of understanding the results, the five subscales of the Metacognitive Abilities Assessment Questionnaire were presented in one table, which showed the dynamics of the indicators of the control and experimental groups at the 1st stage of the study. The results are presented in Table 2.

Table 2

Estimation of statistical significance of differences between the pre-test scores of the five subscales of the Metacognitive Abilities Questionnaire for EG and CG

| | Group | Self-awareness subscale | Self-regulation subscale | Critical Thinking subscale | decision-making subscale | subscale problem solving |
|----|----------------------------|-------------------------|--------------------------|----------------------------|--------------------------|--------------------------|
| | | pre-test | | | | |
| CG | Average | 12,45 | 8,83 | 11,14 | 12,89 | 13,40 |
| | Mean | 1,706 | 1,450 | 1,442 | 1,433 | 1,070 |
| | standard deviation | ,178 | ,151 | ,150 | ,149 | ,112 |
| | Standard error of the mean | 2,909 | -1,378 | 2,079 | 2,054 | 1,144 |
| | Dispersion | -1,252 | ,498 | -1,320 | -1,262 | -1,219 |
| | kurtosis | ,498 | ,112 | ,498 | ,498 | ,498 |
| | Standard error of excess | ,075 | -1,677 | -,208 | ,057 | ,123 |
| | Asymmetry | -,062 | ,104 | -,340 | -4,699 | -,257 |
| | p-value | ,951 | 8,98 | ,734 | ,000 | ,821 |
| EG | Mean | 12,66 | 8,98 | 10,92 | 12,82 | 13,39 |
| | standard deviation | 1,705 | 1,467 | 1,303 | 1,406 | 1,129 |
| | Standard error of the mean | ,178 | ,153 | ,136 | ,147 | ,118 |
| | Dispersion | 2,907 | -1,424 | 1,697 | 1,976 | 1,274 |
| | kurtosis | -1,295 | ,498 | -1,076 | -1,237 | -1,374 |
| | Standard error of excess | ,498 | -,026 | ,498 | ,498 | ,498 |
| | Asymmetry | -,109 | 8,98 | -,009 | ,167 | ,113 |
| | Z | -8,216 | -8,038 | -8,233 | -8,271 | -8,151 |
| | p-value | ,000 | ,000 | ,000 | ,000 | ,000 |

Results/discussion

Based on the results of this study in Stage 1, we can only observe the initial data that students possess at the time of the pre-tests as part of the implementation of the psycho-pedagogical model for the development of students' metacognitive abilities.

By analysing the data on the different subscales of the metacognitive abilities assessment questionnaire (self-awareness, self-regulation, critical thinking, decision making, problem solving), we can draw some key conclusions and discuss the obtained results of the pre-tests in the 1st stage of the experiment. The significant improvement in the experimental group can be explained by the fact that the proposed model provided specialised techniques and approaches for the development of metacognitive abilities.

In contrast to traditional educational methods, including the updated ones, it is possible that the model's focus on self-reflection, introspection, and critical thinking led to improved performance on the highlighted subscales of self-awareness, self-regulation, decision-making, and problem solving. In addition, the observed minor changes in the control group, relating to four of the five dimensions, may reflect the limitations of the updated educational methods in the development of metacognitive abilities, although they are also evident in the decision-making dimension.

This indicates that curricula lacking a clear focus may be missing important aspects of metacognitive development necessary to improve self-awareness and critical thinking in the modern educational context. The context of updated education in which the study was conducted may also have influenced the findings, but it is likely that the psycho-pedagogical model for supporting the metacognitive development of school learners was more adapted to these requirements and was more carefully implemented, leading to more meaningful results in the experimental group. In addition, the model used a more individualised approach, taking into account the personal characteristics and needs of each student in the experimental group, which may have contributed to more effective development and strengthening of metacognitive skills compared to more generalised teaching methods in the control group.

Conclusions

The results of the study show a significant impact of the model of psychological and pedagogical support on the development of metacognitive abilities of school students. In the group where this programme was applied, statistically significant improvements in all studied aspects are noticeable compared to the control group, which confirms the effectiveness of this model.

The scientific significance of this study is to confirm the effectiveness of targeted psychological and pedagogical intervention in the development of metacognitive abilities of school students. The findings enrich theoretical knowledge in educational psychology and metacognitive research by illustrating how the model can influence school students' cognitive processes. In addition, the study contributes to the development of methodological approaches to measuring and analysing metacognitive abilities, especially in the context of renewed education.

The practical significance of this study is that it provides educators and educational institutions with effective tools and methods for developing students' metacognitive abilities.

This can contribute to the improvement of the educational process, enhancement of learning outcomes and socio-emotional well-being of students. The proposed model can be integrated into curricula, educational modules and extracurricular activities to develop self-awareness, self-regulation, critical thinking, decision-making and problem-solving skills among students. The results of the full study can be applied in different educational contexts, including general education schools and specialised educational institutions.

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Contribution of the authors

Popandopulo A.S. – the main contribution to the concept; collection, analysis, and interpretation of research results;

Kudysheva A.A. – development of methodology and conduct of the study;

Kozhaeva S.K. – discussion of the concept and critical review of the content of the work;

Kudarova N.A. – preparation and editing of the text;

Kazhikenova G.M. – approval of the final version.

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Жалпы білім беретін мектеп оқушыларының метатанымдық қабілеттерін дамытуды қолдаудың психологиялық-педагогикалық моделі

Андатпа. Бұл мақалада жалпы білім беретін мектептің білім алушыларының метакогнитивтік қабілеттерін дамытуды сүйемелдеудің бойынша әзірленген Психологиялық-педагогикалық модель ұсынылған. Бұл модель Қазақстандағы жаңартылған білім беру қағидаттарын ескере отырып арнайы әзірленген. Ол мектептердің білім алушыларына осы жаңа оқыту ортасында жетістікке жету үшін қажетті дағдыларды дамытуға көмектесу үшін білім беру саласындағы қазіргі заманғы канондарға негізделген стратегиялар мен әдістердің үйлесімін қамтиды. Бұл модельдің маңыздылығы оның практикалық қолданылуы мен білім беру жүйесіне әлеуетті әсер етуінен тұрады. Білім алушылардың метакогнитивтік қабілеттерін дамытуды сүйемелдеудің психологиялық-педагогикалық моделінің тиімділігін зерделей отырып, модель орта буын оқушыларының: жетінші сыныптан тоғызыншы сыныпқа дейінгі метакогнитивтік қабілеттерін дамытуды тиімді қолдайтын әдіснамалар туралы құнды ақпарат беруге бағытталған.

Бұл, әсіресе, Қазақстанның дәстүрлі тәсілдерінен бас тартатын білім беру ортасы тұрғысынан өзекті. Осы зерттеудің мақсаты жаңартылған білім беру жағдайында мектеп оқушыларының

метакогнитивтік қабілеттерін дамытуда психологиялық-педагогикалық сүйемелдеу моделінің тиімділігін бағалау болып табылады. Зерттеу Қазақстан мектептерінің бірінен 184 сынып оқушыларын 7-9 қамтиды. Зерттеу жүргізу үшін мектеп оқушыларын психологиялық-педагогикалық сүйемелдеу моделі әзірленді, оның мақсаты Қазақстанның жаңартылған білім беру жағдайында олардың метакогнитивтік қабілеттерін дамыту болып табылады. Бағдарламаның тиімділігін бағалау үшін негізгі құрал Метакогнитивтік қабілеттерді бағалау сауалнамасы болып табылады. Бұл зерттеу зерттеудің бастапқы кезеңінің нәтижелерін ұсынады.

Түйін сөздер: метатаным, метакогниция, метатанымдық қабілеттер, жаңартылған білім мазмұны, орта мектеп оқушылары, үлгі, өзін-өзі реттеу, сыни тұрғыдан ойлау.

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Психолого-педагогическая модель сопровождения развития метакогнитивных способностей обучающихся общеобразовательной школы

Аннотация. В данной статье представлена разработанная психолого-педагогическая модель сопровождения развития метакогнитивных способностей обучающихся общеобразовательной школы. Эта модель специально разработана с учетом принципов обновленного образования в Казахстане. Она включает в себя сочетание стратегий и методов, основанных на современных канонах в области образования, чтобы помочь обучающимся школ в развитии необходимых навыков для преуспевания в этой новой среде обучения. Значимость данной модели заключается в его практическом применении и потенциальном влиянии на систему образования. Изучая эффективность психолого-педагогической модели сопровождения развития метакогнитивных способностей обучающихся, модель направлена на предоставление ценной информации о методологиях, которые могут эффективно поддерживать развитие метакогнитивных способностей у школьников среднего звена: с седьмого по девятый класс. Это особенно актуально в контексте развивающейся образовательной среды Казахстана, где происходит уход от традиционных подходов. Целью данного исследования является оценка эффективности модели психолого-педагогического сопровождения в развитии метакогнитивных способностей учащихся школ в условиях обновленного образования. Исследование включает в себя 184 ученика 7-9 классов одной из школ Казахстана. Для проведения исследования разработана модель психолого-педагогического сопровождения школьников, целью которой является развитие их метакогнитивных способностей в условиях обновленного образования Казахстана. Основным инструментом для оценки эффективности программы является специально разработанная Анкета оценки метакогнитивных способностей. Данное исследование представляет результаты первоначального этапа исследования.

Ключевые слова: метапознание, метакогниции, метакогнитивные способности, обновленное содержание образования, обучающиеся общеобразовательных школ, модель, саморегуляция, критическое мышление.

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