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The pedagogical support for early professional self-determination of schoolchildren

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ABSTRACT

In a rapidly changing world, early professional self-determination becomes critically important for young people. The aim of this study is to evaluate a model of psychological and pedagogical support designed to assist schoolchildren in making informed career decisions at early stages of education. The problem lies in the lack of effective support systems within educational institutions, leading to a mismatch between graduates' career choices and their actual professions. The proposed solution is a comprehensive model that integrates psychological, pedagogical, and methodological support, tailored to individual needs. The study involved 180 children from three schools, divided into control and experimental groups. The experimental group underwent a structured educational program that included self-assessment, exploration of career opportunities, goal setting, and enhancement of self-efficacy and motivation. Pre- and post-tests with developed scales were used to assess career clarity, self-efficacy, and motivation. The results showed that the support model significantly improved career clarity, self-efficacy, and motivation in the experimental group compared to the control group. Key improvements were observed in self-understanding, exploration of career opportunities, and goal setting. Thus, the developed model can aid in early professional self-determination, offering a valuable tool for educators and policymakers. Its implementation can better support students in their career choices, fostering their personal and professional growth.

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1. INTRODUCTION

In a rapidly transforming world, self-determination, especially in the field of career choice, has never been more important for young people than it is now [1]. This process is especially relevant given the number of graduates who do not work in their chosen profession [2]. Early professional self-determination not only shapes a person's future career path but also significantly affects their personal growth, well-being and overall life satisfaction [3]. Educational institutions and societies around the world face the challenge of preparing the younger generation for the labor market. Therefore, the role of psychological and pedagogical support in facilitating this process is becoming increasingly important [4]. Childhood entails profound cognitive, emotional, and social changes that coincide with the decisive moment of career decision-making [5]. During the stages of growing up, children or adolescents face numerous decisions and the choices they make can profoundly affect their life path [6]. Successful early professional self-determination unites the

talents and interests of a person with the chosen career. It also increases motivation and involvement in specific vocational education [7]. In turn, the lack of self-determination can lead to dissatisfaction, frustration and unsatisfactory achievements [8]. A high level of motivation is known to increase success in learning [9]–[11]. Thus, educational systems around the world are increasingly aware of the need to provide students with the skills, knowledge, and confidence necessary to navigate the field of career choice [12].

The modern models of psychological and pedagogical support for early professional self-determination combine established theories and current views [13]. These models can rest on developmental psychology, educational psychology, and career development theories, emphasizing the relationship between cognitive, emotional and social factors in career decision-making [14]. Early professional, self-determination of children usually refers to the process of studying and forming ideas about their future careers in pre-adolescence and adolescence, or even earlier [15]. It is challenging to determine the exact age range that would universally define "early" in this context. In some cases, it covers early childhood [15], [16], while in others, it is the period between late childhood and early adolescence [17]. Certainly, professional self-determination is not a one-time event, it is a development process that continues throughout adolescence and even in early adulthood [18]. As children advance in their education and gain more life experience, their understanding of career opportunities may change. Consequently, their career choices may become more precise and specific [19]. Teachers, parents, and career counselors play a crucial role in providing guidance and support at this stage. They help children make informed decisions and choose their field of activity [5]. The encouragement of self-awareness, research, and the study of various career options may foster early professional self-determination [20].

This article focuses on evaluating the developed model of psychological, pedagogical and methodological support for early professional self-determination of schoolchildren. The research objectives were to identify the impact of the support model on early professional self-determination. This task involves measuring variables before and after the implementation of the program to monitor any significant changes. Pre-test and post-test indicators determined the impact of the model on variables related to early professional self-determination of students. Another task was to assess how the developed model differs in effectiveness from traditional methods of career guidance. In this case, the study used a comparative analysis between the effectiveness of the model and existing (more established) career guidance practices. It was also necessary to analyze the statistical significance of the observed differences in the results within the group. This stage confirmed that random fluctuations or errors were not the causes of changes in the variables. The final task was to compare the post-test results of the control and the influence groups. This comparison demonstrated the overall effectiveness of the support model and the educational program. The significance of this research lies in it is potential to contribute to educational psychology and career counseling. It scrutinized the effectiveness of a new model of psychological, pedagogical, and methodological support for early professional self-determination. Accordingly, the research aims to provide information on more effective assistance to schoolchildren in making informed and autonomous career decisions.

The results can be valuable, both from a scientific and practical point of view. The findings can offer educators, politicians, and parents an action plan to more effectively support the career growth of young people. The modern model of psychological, pedagogical, and methodological support for early professional self-determination is a paradigm shift in education. It implies a departure from a universal approach to personalized assistance and holistic development, which is an important issue for scientific research. The article presents practical ideas for improving educational practice: it introduces a modern model of support for early professional self-determination of schoolchildren. Focusing on early professional self-determination, the article emphasizes the importance of starting the process of choosing a career (profession) in childhood and adolescence. The research bridges the gap between psychology, education, and career guidance, promoting interdisciplinary research cooperation and enriching the scientific discourse on effective educational practices.

At different stages of self-determination, children learn various academic subjects, attend extracurricular classes, and receive professional information. These activities can influence their interests, aspirations, and initial career-related decisions [6]. They begin to explore their strengths, preferences, and hobbies that may affect their thinking about a potential career [21]. This support helps children explore their interests, identify their strengths and talents, and make informed employment and career choices [22]. The key components of this support include the encouragement of children to study various professions, industries, and interests, the development of a deeper self-understanding, the setting of achievable short- and long-term career goals, and so forth [23].

Several theoretical foundations contribute to understanding professional self-determination in the context of children's career development. For example, the study of child development, including the theories of Erikson and Piaget, gives an idea of the cognitive and psychosocial changes that occur in childhood [24]. These changes affect the children's sense of identity and may influence their career development. The self-determination theory (SDT) states that people have innate psychological needs for autonomy, competence, and interconnectedness. In the context of career development, autonomy is especially

relevant since it assumes the ability to make independent career choices [25]. One can also mention the socio-cognitive career theory (SCCT). This theory emphasizes the role of self-efficacy, expectations of results, and personal goals in career development. Children's faith in their abilities and their expectations regarding the results of choosing a profession are decisive factors of early professional self-determination [26]. In addition, the theory of multiple intelligence, developed by Howard Gardner, suggests that people have different intelligences or talents. Therefore, the recognition and development of these abilities in children can affect their career interests and strengths [27]. There are also positive psychology principles, such as approaches based on strengths and the pursuit of happiness and well-being. These principles can also direct efforts to support early professional self-determination of children, focusing on their positive qualities and aspirations [28]. Various career development theories, such as Super's, provide a framework for understanding career development stages and the role of self-esteem and professional identity [29].

The models of psychological, pedagogical, and methodological support for early professional self-determination of students is a structure or approach that combines psychological and pedagogical strategies. These strategies help students in the process of making informed and meaningful decisions about their future careers [30]. These models provide students with the necessary skills, knowledge, and support to explore their interests, strengths, and values, ultimately helping them choose suitable career paths [31]. The models can include a combination of many components. For example, trained professionals, such as school counselors or career counselors, can conduct individual or group counseling to help students [32]. Self-assessment tools, career guidance surveys, or support models provide students with access to a wide range of information and resources related to various careers, educational paths and industries (books about career success, websites, videos, invited speakers from different professions, and so forth) [2]. Job search and internships introduce students to real career experiences, allowing them to practice potential career paths [33]. Short- and long-term career goals are also a means of support. By setting goals, students learn how to make action plans and determine the educational and professional steps necessary to achieve their goals [34]. At the same time, students require support to develop basic life skills, such as decision-making, problem-solving, time management, communication, and adaptability. These abilities are critical to success in any career [35]. In addition, psychological and pedagogical support models may include mentoring and role models. These models involve parents or guardians in the career choice process and ensure the principles of inclusivity and diversity [36].

Career development entails personal and emotional development. Therefore, some models tend to focus on improving psychological aspects [37]. The main meaning and purpose of these models is to create a structured and favorable environment to allow students to make informed and independent decisions about their future careers [36]. By combining psychological knowledge (the inner motives, interests, and abilities of a person) with pedagogical approaches (educational resources, recommendations, and opportunities), these models foster professional self-determination [38]. In this case, the ultimate goal is to help students find a career path that matches their interests and strengths. It increases their commitment and satisfaction, as well as maximizes their potential for success and self-realization in the world of labor [2]. Support aims to prepare students for the choice of future employment. They develop the skills and confidence necessary for effective advancement along the chosen career path [36]. Thus, the research gap identified in the literature review mainly concerns the need to create a structured supportive environment. This environment is necessary to promote self-determination and independence of career decisions among schoolchildren, integrating psychological knowledge with pedagogical approaches. Existing models of psychological and pedagogical support for early professional self-determination are often insufficiently comprehensive and personalized. As a result, they fail to meet the unique needs, interests, and strengths of each child. These models pay little attention to developing children's decision-making skills, adaptability, and resilience, which are crucial for career success. Therefore, there is an urgent need to develop a structured and inclusive model focused on psychological aspects. This model can provide a comprehensive and personalized support system for early career decision-making.

The main purpose of the article is to evaluate a psychological and pedagogical support model designed to help schoolchildren make informed decisions about their future profession and career at an early stage of education. It is interesting to determine whether this approach gives positive results and how it correlates with traditional methods of career guidance and counseling. The results contribute to educational practices, policies, and measures. The study offers evidence-based information on how schools, teachers, and consultants can better support students in career decision-making. Accordingly, the research tasks are: i) use pre-test and post-test indicators to establish whether the developed model of psychological, pedagogical, and methodological support affected the studied variables of early professional self-determination; ii) compare the model with classical career guidance measures; iii) determine the reliability of differences in intra-group results; and iv) evaluate the developed support model and the educational program based on this model by comparing the post-test results of control and influence groups.

2. METHOD

To evaluate the model of psychological and pedagogical support for early professional self-determination of schoolchildren, it was necessary to analyze various aspects of the model's impact. To assess effectiveness, researchers typically consider several variables and indicators. In the current study, the variables of professional self-determination were: i) career clarity (to assess students' understanding of their professional and career goals and aspirations); ii) self-efficacy (to assess the confidence of students in their ability to set and achieve professional and career goals); and iii) motivation (to assess the motivation of students to choose a professional career in the future and to make progress in achieving their career goals). Due to the lack of established tools tested in the Kazakh context, the researchers developed three scales specifically for the current study to measure and evaluate these variables. The scales contain three subscales of five statements each. Respondents have to evaluate the statements on a 5-point Likert scale (from "strongly disagree" to "strongly agree"). Thus, respondents indicate whether each statement reflects their feelings and thoughts about the variables. Thus, the study used a total of 45 statements described in three scales and nine subscales.

A pool of potential items (statements) was created for each scale. The pools rested on a literature review and consultations with experts in career development and psychology. A group of experts, including psychologists, educators, and career counselors, reviewed the initial set of questions, assessed the relevance and clarity of each item for the measured variables, and provided feedback. The pilot testing among twenty children aimed to identify any ambiguities in the wording, potential errors in the answers, or problems with understanding. Based on the pilot testing results and expert feedback, the authors clarified the initial set of positions and excluded unclear elements. As a result, the set of elements became shorter-five statements per subscale. The statistical analysis assessed the reliability and internal consistency of each scale. The average value of Cronbach's alpha was .88 for the career clarity scale (CCS); .91 for the career choice self-efficacy scale (CCSES); and .90 for the career motivation scale (CMS). A research analysis and a confirmatory factor analysis were necessary to study the basic factor structure of the scales. To assess parallel validity, the authors examined the relationship between scales and other variables, which theoretically could correlate with career clarity, self-efficacy and motivation.

The current study utilized the developed model of psychological, pedagogical, and methodological support for the early professional self-determination of students [39]. This model is described in detail in a recently published article that addresses problems in a modern educational environment. The model is a structured framework with various components and strategies. Its goal was to provide students with the knowledge, skills, and self-confidence necessary for early professional self-determination. This model is a comprehensive structure that outlines the fundamental principles and strategies that could guide a school or other educational children's institution. In the current study, the model served as a basis for an educational program implemented in the influence group as shown in Table 1.

This educational program aimed to support the early professional self-determination of schoolchildren through various activities. The activities corresponded to the modern model of psychological and pedagogical support. The program encouraged introspection, career search, goal setting, self-efficacy, and motivation to create a holistic approach to early career determination.

The traditional approach (for the control group) was generally accepted as a classical methodology for schools in Kazakhstan. It was more directive and less personalized compared to the above. It included standardized testing for career guidance, visits to an open day at several universities in the city, and one-time counseling on professional and career decision-making. The children also had three homeroom classes to discuss the studied issue. This approach was not new and had functioned long before the appearance of modern trends and models.

2.1. Participants

The study involved students from three schools in Pavlodar (a city in Kazakhstan): Gymnasium No. 3, Secondary School No. 42, and Secondary School No. 24. The total number of participants was 180 children (two groups from each school). The average age of the participants was (M=12.6; SD=.6). Before the study, parents or guardians provided written consent to the participation of children in the study. The children provided the oral consent. Table 2 presents more detailed information about the participants.

One group from each school was randomly identified as a "control" and another as an "influence." This distribution determined the groups that would practice the program based on the psychological and pedagogical support model and those that would follow the traditional approach. Children remained in the same groups as they used to be. An attempt to change the groups could have caused stress and, in general, is challenging in the context of the research. Additionally, the study involved three school psychologists, six invited psychologists, and six teachers. The experts took a course of seminars on the implementation of the educational program based on psychological and pedagogical support for the early professional self-determination of schoolchildren.

Table 1. The educational program of psychological and pedagogical support for the early professional self-determination of schoolchildren

Topic	Educational events	Activities with children
Introduction to self-study	Tests for self-assessment of interests, strengths and values. Group discussions about personal interests and hobbies. The invited experts from different fields.	Children participate in self-assessment activities and discussions to identify their interests, strengths and values. They hear firsthand from professionals about various career paths.
The study of career options	Career study seminars with practical classes. Virtual or physical visits to workplaces. Role-playing games for modeling various professions.	Children participate in interactive activities to explore different career options. They visit workplaces to gain practical knowledge and participate in role-playing games to understand different roles.
Career goal-setting	Exercises for setting goals to imagine a future career. Creating a visualization board to achieve career goals in the future. Invited speakers share their career paths and experience in setting goals.	Children set specific career goals, create visualization boards and learn from invited speakers who have achieved their career goals.
Improving self-efficacy	Self-efficacy workshops focused on effort and resilience. Group discussions on overcoming problems. Encouragement and recognition of achievements.	Children attend master classes. They discuss coping strategies and receive recognition for their achievements.
Career planning and decision-making	Exercises for planning a future career and direction of activity. Group discussions of decision-making strategies. Trial interviews and seminars on resume preparation in a group environment.	Children participate in planning their future professional path, learn decision-making skills and practice resume writing. In groups, they play in trial interviews.
Strengthening motivation	Motivational conversations and videos. Group activities that emphasize the importance of motivation. Individual motivation plans for choosing the right professional direction.	Children learn motivational content and participate in activities that increase their motivation and interest. They create personal motivation plans for their chosen career in a particular profession at that time.
Showcase of future career/profession	Presentations of students about their intended career. A job fair with display stands and presentations.	Children demonstrate career aspirations and participate in a job fair in the chosen direction.
Celebration and Graduation	The closing ceremony. Exchange of statements about the career plans for the future and the professions that the participants would like to choose.	Children celebrate the completion of the program, participate in the celebration and share conclusions about their career vision.

Table 2. Data on participants from three schools in Kazakhstan

The educational institution	Total from each school	In each class		Female students		Male students		Average age	SD
		C	I	C	I	C	I		
Gymnasium No. 3	58	28	30	16	17	12	13	12.7	.6
Secondary School No. 42	57	29	28	14	16	15	12	12.5	.7
Secondary School No. 24	65	33	32	20	18	13	14	12.7	.5
Total	180	90	90	50	51	40	39		

*Note: C=the control group; I=the influence group.

2.2. Research design

The study covered the period from the end of September 2022 to the beginning of May 2023. At the beginning of October, all 180 respondents completed the proposed scales at their schools. Then their groups were randomly assigned to influence and control groups. The control groups did not have any additional career guidance measures other than the traditional ones described earlier. The participants in the influence group had one activity per week of varying duration depending on the event, that is, four classes per month. For nine months, including the holidays, the number of events amounted to 25 for the entire period of influence. In each of the schools, there were two trained teachers, one school psychologist, and two visiting psychologists who implemented the program. The children either stayed in the full group or were divided into mini-groups, depending on the activities. Competent adults and school representatives always accompanied the children on trips. After the end of the educational program, in May 2023, all 180 respondents again completed the three proposed scales.

2.3. Data analysis

SPSS Statistics was a tool that helped analyze the results. The study utilized the methods of classical analytical statistics applied. As well as calculated nonparametric criteria for intra-group and intergroup differences.

2.4. Ethical issues

The study and it is plan, as well as the proposed model and educational program, were reviewed by the three schools that participated in the research. The administration of all educational institutions and their ethics committees provided their permission. One of the parents (or guardians) had to provide their written consent to the child's participation in the study. The children were not forced to take part in the study, their participation was voluntary.

3. RESULTS

The first task of the current study was to establish whether the developed model of psychological, pedagogical and methodological support increased the indicators of the studied variables, namely: career clarity, self-efficacy and motivation. The study also calculated asymptotic significance using the Wilcoxon test for related samples. Table 3 shows pre-test and post-test indicators on the CCS for three subscales: self-understanding, career search, goal setting, and planning.

As the table shows, there are no significant differences in pre- and post-test indicators in the subscales of the control group. In the influence group, the self-understanding subscale significantly increased (significance level .005): the growth was by 5.65. For career search, the increase is by 5.85; for goal setting and planning-by 5.05. Thus, the developed model of psychological, pedagogical and methodological support positively influenced all three subscales of the CCS. For the CCSES, the calculations were similar. This scale also had three subscales: confidence in setting goals, perseverance and resilience, and confidence in decision-making, as shown in Table 4.

Table 3. The pre-test and post-test indicators on the CCS among the respondents of the control and influence groups

		Pre-test self-understanding	Post-test self-understanding	Pre-test career search	Post-test career search	Pre-test goal setting and planning	Post-test goal setting and planning
The control group	Mean	10.55	9.65	8.75	7.95	12.15	11.45
	Standard error of the mean	.478	.477	.323	.312	.477	.407
	Standard deviation	2.139	2.134	2.446	2.395	2.134	2.820
	Variance	4.576	4.555	2.092	1.945	4.555	3.313
	Kurtosis	-1.286	-1.280	-.814	-1.198	-1.418	-.987
	Asymmetry	-.489	.257	-.790	.227	-.181	.118
	Asymptotic significance	.196		.080		.252	
The influence group	Mean	10.00	15.65	8.15	14.00	11.80	16.85
	Standard error of the mean	.447	.386	.365	.377	.395	.357
	Standard deviation	2.000	2.725	2.631	2.686	2.765	2.599
	Variance	4.000	2.976	2.661	2.842	3.116	2.555
	Kurtosis	-1.246	-.991	-1.730	-.910	-.742	-1.324
	Asymmetry	.175	.060	-.024	-.439	-.237	-.245
	Asymptotic significance	.000		.000		.000	

Table 4. The pre-test and post-test indicators the CCSES among the respondents of the control and influence groups

		Pre-test self-understanding	Post-test self-understanding	Pre-test career search	Post-test career search	Pre-test goal setting and planning	Post-test goal setting and planning
The control group	Mean	9.75	9.60	8.65	8.50	11.55	11.45
	Standard error of the mean	.362	.407	.284	.256	.276	.256
	Standard deviation	3.618	3.818	3.268	3.147	3.234	3.146
	Variance	2.618	3.305	1.608	1.316	1.524	1.313
	Kurtosis	-.580	-1.461	-1.635	-1.401	-1.621	-1.379
	Asymmetry	-.212	-.091	-.289	.000	-.127	.136
	Asymptotic significance	.776		.719		.824	
The influence group	Mean	9.50	15.15	8.80	13.70	11.60	15.20
	Standard error of the mean	.336	.418	.258	.534	.255	.345
	Standard deviation	3.504	3.872	3.152	3.386	3.142	3.542
	Variance	2.263	3.503	1.326	5.695	1.305	2.379
	Kurtosis	-.489	-1.025	-1.168	-1.201	-1.311	-.678
	Asymmetry	.258	-.134	-.487	-.121	-.273	-.658
	Asymptotic significance	.000		.000		.000	

In the influence group, the difference in the average values of confidence in setting goals between the pre-test and the post-test is 5.65. For perseverance and resilience, the value is 4.90; for confidence in decision-making -3.60. The difference in indicators in the control group is not statistically significant. In turn, in the influence group, all indicators of asymptotic significance are not above the threshold level. This result confirms the positive impact of the influence on the average values of all three CCSES subscales. The third analyzed scale, the CMS, also contained three subscales: intrinsic motivation, extrinsic motivation, and amotivation. Table 5 presents the data.

In the influence group, on the intrinsic motivation subscale, the difference in the indicators of pre-tests and post-tests is 4.85. Extrinsic motivation increased by 3.75, while amotivation, on the contrary, decreased by 5.40. Therefore, the model of psychological, pedagogical, and methodological support had a significant positive impact on the studied subscales. The difference in indicators in the control group is not statistically significant. In the influence group, it is significant in all three subscales.

Table 5. The pre-test and post-test indicators the CMS among the respondents of the control and influence groups

		Pre-test self-understanding	Post-test self-understanding	Pre-test career search	Post-test career search	Pre-test goal setting and planning	Post-test goal setting and planning
The control group	Mean	12.15	12.35	11.20	10.90	16.45	16.50
	Standard error of the mean	.335	.284	.329	.340	.294	.267
	Standard deviation	2.496	2.268	2.473	2.518	2.317	2.192
	Variance	2.239	1.608	2.168	2.305	1.734	1.421
	Kurtosis	-1.584	-.696	-1.315	-1.481	-1.846	-1.527
	Asymmetry	-.074	-.400	-.382	.086	-.033	.104
	Asymptotic significance	.645		.527		.923	
The influence group	Mean	11.90	16.75	10.60	14.35	16.70	11.30
	Standard error of the mean	.340	.307	.294	.244	.272	.300
	Standard deviation	2.518	2.372	2.314	2.089	2.218	2.342
	Variance	2.305	1.882	1.726	1.187	1.484	1.800
	Kurtosis	-1.481	-1.261	-1.304	-1.310	-1.647	-1.832
	Asymmetry	.086	.093	.068	.021	-.132	.259
	Asymptotic significance	.000		.000		.000	

The second task was to evaluate the effectiveness of the developed support model and educational program. It was necessary to compare the indicators of post-tests between control and influence groups. Table 6 presents data on the significance of intergroup differences in post-test scores on the CCS, CCSES, and CMS scales between the control and experimental groups. The non-parametric Mann-Whitney U test was used to analyze each scale representing the necessary variables. The analysis of the presented data indicates that the calculations for all three scales (CCS, CCSES, and CMS) revealed statistically significant differences between the control group and the experimental group in the post-tests. The asymptotic significance value (two-sided) for all measured parameters is below the .05 threshold, indicating significant differences in outcomes between the groups. These results indicate that the developed model and educational program of psychological, pedagogical, and methodological support had a statistically significant positive impact on the experimental group. Improvements were observed across all parameters of career clarity, self-efficacy, and motivation in career path selection.

Table 6. The significance of intergroup differences in post-test on CCS, CCSES, and CMS among the control and influence groups

		Mann-Whitney U	Wilcoxon W	Z	Asymptotic significance (2-sided)
CCS	Post-test self-understanding	3.000	213.000	-5.357	.000
	Pre-test career search	.000	210.000	-5.443	.000
	Post-test goal setting and planning	4.000	214.000	-5.332	.000
CCSES	Post-test confidence in setting goals	4.000	214.000	-5.330	.000
	Post-test perseverance and resilience	7.500	217.500	-5.251	.000
	Post-test confidence in decision-making	14.500	224.500	-5.073	.000
CMS	Post-test intrinsic motivation	.000	210.000	-5.444	.000
	Post-test extrinsic motivation	12.000	222.000	-5.153	.000
	Post-test amotivation	.000	210.000	-5.476	.000

4. DISCUSSION

The results showed that the model of psychological, pedagogical, and methodological support significantly influenced the studied variables: career clarity, self-efficacy and motivation. In this case, it is important to discuss the possible reasons for these results and the absence of significant growth in the control group. Probably, the model contained a structured and well-thought-out program that provided students with tools, resources, and recommendations. Ultimately, this model increased the awareness of students about their interests, strengths, and values, thereby improving indicators [30]. In the influence group, students could have benefited from discussions and classes with peers, teachers, and psychologists, as well as from other activities included in the model and program [38]. For example, goal-setting exercises could have allowed the students to increase confidence, contributing to self-efficacy [40]. Activities that promote perseverance and resilience may have encouraged students to persevere through difficulties, as well as increased their self-efficacy [41].

The results of the control and influence groups show high levels of amotivation. Amotivation occurs when people feel disconnected or disinterested in a specific task or goal [42]. This fact only underlines the need to work with the motivation and interest of schoolchildren. They do not seriously participate in these activities, considering this issue irrelevant. Nevertheless, it is decisive to determine a professional path during the school years [3]. Some researchers conducted a scientific and practical study [36] on the problems of professional self-determination in modern society. The results indicated the need to form "soft" skills among people choosing a future profession. The current model partially relied on this conclusion. As for the control group, the results show that the lack of leadership and resources can hinder the progress of children in terms of professional self-determination. Therefore, it is necessary to reject established and outdated paradigms in this aspect. In turn, it would be more beneficial to apply individual and inclusive approaches to schoolchildren regarding their early professional orientation.

Radetskaya *et al.* [21] described the development of educational quests focused on professions. The paper revealed the types of quests that can effectively form ideas about popular professions and expand personal opportunities in the professional interests of children. The experiment of Radetskaya *et al.* [21] involved more than 3,000 schoolchildren. The authors showed that educational quests facilitate professional self-determination and help young people focus on sought-after professions in the modern labor market. This conclusion also confirms the positive effect of the developed intervention programs studied in the current research. Another scientific work by Sergeeva *et al.* [31] outlined the main components of the psychological and pedagogical model of professional development: professionalism, consideration of psychological and pedagogical conditions, the need for self-realization, communicative abilities, creative and subjective potential, training of self-regulation skills, self-improvement. The current model presents some of the components mentioned in the study of Sergeeva *et al.* [31]. This fact only emphasizes the variability of the developed approaches and the need for further research to determine the most effective of them.

Luchinina and Yunusova [32] described the development and implementation of a comprehensive psychological and pedagogical support program for students in pre-professional training. The study by Luchinina and Yunusova [32] discussed the programs of pre-professional training courses and their content, which proved effective. Thus, the interventions described in the article, as well as those presented in the current paper, are reliable. Another study by Podliesna *et al.* [2] proposed the conceptual foundations of pedagogical support for students' social and professional self-determination. The authors reported several main reasons why students abandon their profession and these reasons can be subject to correction in the learning process [2]. One can conclude that it would be more effective to work with schoolchildren at an early stage. This approach would prepare them for the correct and confident choice of profession and career path in the future. Early interventions could improve the quality of career guidance and increase the percentage of people working in their field of study.

5. CONCLUSION

The study showed that the developed model of psychological, pedagogical, and methodological support effectively contributes to the early professional self-determination of students. The influence group demonstrated pronounced improvements in career clarity, self-efficacy, and motivation. This group also has a marked increase in self-understanding, career search, goal setting and planning, and various aspects of career motivation. These results, demonstrating statistically significant intra-group differences, emphasize the practical effectiveness of the model in education and career guidance. This study makes a significant contribution to this field by empirically testing an effective support model and emphasizing the need for structured intervention in early career decision-making. The conclusions of the study indicate that the developed model of psychological and pedagogical support significantly enhances early professional self-determination among schoolchildren, potentially leading to more informed career choices and increased career satisfaction. Implementing such models in school programs worldwide could improve the professional

preparation of youth. Future research will be beneficial in adapting the model to various cultural and educational contexts, ensuring its universality and effectiveness.

The results of the study highlight a significant improvement in the indicators of professional self-determination of students. This result makes the developed model and educational program important tools for schools and career guidance services. The findings can serve as a basis for the development and implementation of targeted career guidance support programs. These programs can improve the self-knowledge of students, their ability to set and plan career goals, as well as their motivation to choose a profession. Given the significant improvement in professional self-determination, the research calls for education policymakers and authorities to consider the possibility of integrating similar models and programs into the educational system. This task includes reviewing and updating existing career guidance activities, as well as introducing new methods of psychological and pedagogical support into school curricula.

In further research, it is necessary to assess the long-term impact of the model on student professional self-determination. In addition, there is a need to study its effectiveness in different educational and cultural contexts. Researchers may also consider adapting and modifying the model to meet the specific needs of different groups of students. For the successful integration and implementation of effective career guidance programs, it is crucial to strengthen cooperation between schools, scientists, politicians, and practitioners in the field of education. It is possible through joint policy development, exchanges of best practices and resources, as well as training and educational programs for teachers and school counselors.

Unfortunately, the sample was small due to the difficulties in organizing the extracurricular activities of children. In addition, it is assumed that specific models of psychological and pedagogical support/guidance may differ in their content, activities, and goals. This fact may create variability in approaches to their development and implementation. The case of Kazakhstan may differ from the case of other countries, complicating cross-cultural and geographical extrapolation. Finally, the study used specially created scales that were tested for the first time after the pilot testing. This fact may also be a limitation.

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AUTHOR CONTRIBUTIONS STATEMENT

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C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
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R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICTS OF INTEREST STATEMENT

The authors declare that there are no conflicts of interest regarding the publication of this paper.

INFORMED CONSENT

One of the parents (or guardians) had to provide their written consent to the child’s participation in the study. The children were not forced to take part in the study, their participation was voluntary.

ETHICAL APPROVAL

The study and its plan, as well as the proposed model and educational program, were reviewed by the three schools that participated in the research. The administration of all educational institutions and their ethics committees provided their permission.

DATA AVAILABILITY STATEMENT

Data confirming the results of this study are available upon request from the first author of the current article if the request meets all applicable confidential and legal restrictions. Researchers interested in accessing the data have to make an appropriate request to the contacts (mail) of the first author. Some data may be limited due to confidential agreements or data protection legislation.

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