Competence-oriented program to improve the quality of continuing medical education for doctors

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Abstract. Background. Programs to improve the quality of higher education in recent decades have kept the lead in the relevance among researchers around the world. In this scientific work, the purpose was to highlight modern existing programs in the postgraduate education of doctors in the Republic, review the academic competencies from other countries of the world, develop recommendations for improving the organizational structure of educational methods, as well as to increase significantly the effectiveness of the additional educational process. Materials and methods. When writing the work, methods such as analysis, synthesis, review of literary sources, humanitarian and dialectical were used. Results. The results of the research were as follows: the application of competence-oriented adaptation programs in the training of graduates, the reorientation of the system of additional medical education in Kyrgyzstan, as well as the development and implementation of a learning model based on pedagogical prognosis, communication logistics, engineering technologies and the humanitarian and creative approach among all participants in the educational process. Conclusions. The result of the article included the development of recommendations for the correct and modern adaptation of a doctor to changing conditions and requirements of the labour market in the Kyrgyz Republic given the volatility of this market and its sensitivity to changes in the economy and the psychological attitudes of the society.

Keywords: qualification; educational process; organization of training; pedagogical management; postgraduate education

Introduction

The purpose of the work was to review the current approaches to the competency-based continuing medical education in the Kyrgyz Republic (KR), to extract positive European and Western experience, to develop our own progressive structures for the qualitative transformation of medical education for postgraduate specialists. In the KR, the quality of continuing medical education has been actively considered by the healthcare system in recent decades. The key to a modern, progressive model of medical care was the evidence-based medicine and the introduction of innovative technologies. Practical healthcare dictates its own requirements for specialists, which cannot be maintained over many years of work without continuous improvement [1, 2]. The educational process acquired the status of continuous or additional, it was represented by educational programs the purpose of which was the constant professional development of specialists.

Health actors were interested in structuring the continuing education of doctors, since this type of activity was a powerful trigger for the socialization of medical workers and the commitment to high-quality medical professionalism. The institutionalization of continuing education in medicine brought individual and collective thought processes together, resulting in a qualitative breakthrough in the healthcare system [3, 4]. The symbiosis of education and practice enriched medical professionalism and brought it to a “responsive” level.

The advantages and disadvantages of competency-based orientation programs in the educational process have been considered by teachers, doctors, journalists, psychologists, and other specialists at various times. For example, S. Jagpal et al. in a scientific article investigated the use of adaptation programs in the spectrum of continuing medical education, with the aim of modernizing the level of quality and safety of services for patients, as opposed to iatrogenic medical er-
errors in therapy and diagnosis, which have been documented in the United States of America. J. Lockyer et al. [6] wrote a paper highlighting the importance of competency-based medical education, emphasizing the need to reformat the paradigm of postgraduate education and the isolation of a doctor who does not look to the future.

H. Bok et al. [7] in their study emphasized the value of a competency-based academic process that ensures a high degree of interaction between current principles of programmatic data assessment and educational practice. F. Zhou et al. [8] conducted a review, analyzed the pros and cons of competency-based training for medical residents and interns, developed recommendations for improving the quality of teaching for medical educators in the People’s Republic of China. Emphasis was placed on the humanistic awareness and medical talent of doctors.

In the KR, the theoretical basis for distance learning courses was under development and formation. For full development and scaling, it was necessary to create a consistent plan to improve additional education, as well as consider the process as an integral component of the national system of medical education [9]. The advantages of distance learning courses were the determination of the professional qualifications of specialists, assistance in adapting to new standards in socio-economic, information, innovation, and other parts of medicine. The fact of professional burnout of doctors, which can occur for a number of reasons, is well known. One of the methods of combating such academic and social regression has been continuous improvement in the profession, by deepening knowledge within their specialization or mastering related branches of medicine [10]. Improving cognitive abilities ultimately leads to the formation of new thought processes and a breakthrough of news.

Competency-based medical education focused on student outcomes and their ability to build on a strong evidence base [7]. The transition to continuous additional medical education required the reform and transformation of the already existing healthcare system in the KR. Thanks to the united actions of medical workers, their employers, state regulatory bodies, it is possible to achieve a qualitative increase in the level of competence of medical personnel. The key elements of a competency-based program in medicine were the achievement of high professionalism of doctors through the rational use of time and information resources directly at the workplace [6]. Collection, analysis, and evaluation of data on the clinical effectiveness of their own databases were also necessary for both students and the medical system in the KR as a whole.

Further education in medicine played an important role in the development of individual doctors and the effectiveness of the medical industry in general. A competency-based approach allowed doctoral educators, doctoral residents, and interns to integrate the full range of academic literacy into their daily work [8]. The principles of patient safety are included in the mandatory education of medical professionals. Continuing medical education has played a primary role in achieving systemic change and improvement in the practice of patient care and therapy. It justifies the inclusion of initiatives to rapidly improve the quality of educational programs, the development of innovative lines of doctoral education, and the confirmation of the results obtained regardless of the time trajectory [5, 11]. Through the lens of continuous learning based on competencies in medicine, the level of safety of medical services provided to patients, as well as the quality of such services, has necessarily increased [12]. The issue of improving patient safety has been raised at international conferences for many years.

Materials and methods

This article used the methodology of collecting, analyzing, and summarizing the accumulated theoretical and practical academic experience of teachers from this higher medical educational institution. Scientific work is based on the dialectical method of cognition of the studied facts and phenomena in which references to the identified categories and principles were used to reform and improve the existing education system, as well as the development of a new strategy for conducting the process. Phenomena were considered in dynamics, their contradictions, problems, and theoretical reconstruction were studied. Building a strategy and tactics for the transition of the previous system of additional education to a qualitatively new one is impossible without an analysis of the evolutionary steps of such a system. An analysis was made on the implementation of a dual training program in the source country, a comparison of the results of implementation with the results in the Republic of Kyrgyzstan and a generalization of the material with the identification of contradictions were highlighted.

Thanks to the theoretical coverage of the study, it was possible to delve into the essence of such a process as a competence-based approach in education, to touch on its internal basis, historical aspect, experience of application at the European and Western levels. To determine the algorithm for the introduction of new educational programs, the functioning and multiplication of their results, the method of synthesis of the already introduced academic model was used. An abstract evaluation of parameters, features, and categories was used. The systematization of the obtained data made it possible to study the objects of scientific work from different angles, to highlight their common aspects and differences.

The methodology for researching the topic of the article was based on data from research programs of the Kyrgyz State Medical Institute of Post-Graduate Training and Continuous Education named after S.B. Daniyarov (KSMIPGTCE). Researchers from KSMIPGTCE used analysis, synthesis, observation, and comparison of previous doctoral development programs with the proposed competency-based program. As a result of many years of monitoring, the employees of the institution managed to create the necessary justifications for the development of a new academic program, as well as introduce it into teaching practice.

With the use of the deductive method, this paper focused on the problems of training individual doctors and how this will affect the healthcare system as a whole. The acquired and theoretically substantiated skills served to generalize knowledge and systematize the requirements for the programs proposed in the topic of the work. The analysis and synthesis of the real experience of implementing the principles of the competence-based approach in the organization of postgraduate education for doctors and interns were carried out.
Thanks to the abstraction method, it was possible to neglect the insignificant parameters of this issue and focus on the object of study and its characteristics.

The study of the literary sources on the topic of the work also made it possible to use the empirical principles of knowledge. As a result of monitoring the dynamics of indicators, recommendations were developed to simplify the implementation of the research program. The methods of analysis and synthesis, which were used in various combinations, contributed to the validity and practical reliability of the conclusions. The humanitarian principle of scientific medical research was applied. With its help, the article emphasized the importance of clinical practice, which is in full demand in the KR. Using monitoring, forecasting, and planning elements, it was possible to systematize knowledge about the importance, prospects, and topicality of modification programs in education. As a result of the thought process and abstract modelling, recommendations were developed.

Results

In the KR, Order of the Republic of Kyrgyzstan No. 93 “Concept for the development of continuous medical and pharmaceutical education in the Kyrgyz Republic for the period 2022–2026” (2022) was developed. KSMIPGTCE acted as a leader in continuing medical education, in accordance with the concept, conducted the introduction of new provisions in the mechanisms for the transformation of continuing medical and pharmaceutical education. These activities are aimed, among other things, at managing the quality of postgraduate education. New formats for presenting information, distance learning, telemedicine, visual simulation aids, and others have been proposed [5, 13]. The approach to improving the quality of medical services provided through the theory of education and lifelong learning eventually led to a statistical increase in patient safety.

Given the data, an analysis on the problems of the aforementioned new model was carried out. It turned out that the legislative framework had several gaps in the regulation of postgraduate education. There was no close relationship in the context of sharing experiences between the institution and state institutions. The factor of continuity in education obligated academic processes to be flexible, to have financial support from both the teaching staff and practice bases, and students. Distance learning methods, interactive presentation of information, simulation classes, telemedicine, and robotisation were not used enough. Due to the meagre material and technical equipment of departments, lecture halls, clinical bases, laboratories, the modernity of the approach to education was lost. Also, the lack of an accessible organisational structure was important, and a single online platform that would be easy and convenient for all healthcare subjects to use [14, 15]. The presence of such a platform in healthcare would contribute to the rapid information content of the industry.

Due to a permanent pedagogical support, control over the management of the educational institution, the development of regulatory and legal documentation, the assessment of competencies, and the formation of professional identity were ensured. At all stages of the educational process, attention was paid to the sequence and logical learning algorithm [6, 7, 12]. For a qualitatively new level of medical services in the KR, the process of postgraduate advanced training has been transformed. A transition was made from the traditional model, where a specialist was required to confirm qualifications every five years, to a model of continuous additional annual education.

KSMIPGTCE put forward priority goals in management; in connection with this, an analysis of the labour market for medical workers and other specialists was conducted, new principles and concepts were introduced into the system of postgraduate education both for the current year and for the long term. Active information training of specialists was carried out and specific requirements were put forward for their professional competencies. The process of certification of doctors was implemented, educational standards were developed in collaboration with legislative bodies [3, 9]. The academic, social and pedagogical liquidity of medical personnel was improved, a safe and student-oriented learning environment was provided.

A new milestone in the activities of KSMIPGTCE was the scientific project “Triad synthesis of modern scientific and ideological culture of doctors”, which is based on the works of Professor I. Ashimov [1]. The project was created to deepen the knowledge of specialists in symbiosis with a qualitatively high level of scientific culture in the process of continuous education. The reclamation of science, the observance of its philosophy and concepts served as the links of the triad. The purpose of this project for KSMIPGTCE was to transform the previously obtained empirical component of a process or phenomenon into a new theoretical basis, thanks to which the object was studied more capacitively, as an integral part of objective reality. As a result of such a systematic approach, theories, and hypotheses were put forward [16]. The triad in this context is part of the synthesis in the processing of parameters.

In 2022, state educational standards provided KSMIPGTCE with the opportunity to independently develop curricula, the content, and the scope of seminars, conduct research work and create their own technology parks. Applying a competence-oriented approach, the university multiplied the motivational component of the trainees and identified the academic party with humanistic values. As such, competence was designed to consolidate the skills, knowledge, and skills of the individual, to include his personal factor in the structure of presentation and teaching, and also to aim at the universality of knowledge.

As a result of the synergy of efforts of the teaching staff of KSMIPGTCE, the idea of creating professional and pedagogical practice-oriented sites at this institution was put forward and implemented as an organizational form of collective activity. Based on the sites, the educational process of the old system of postgraduate education was transformed. For this, seminars, distance lectures, optional hours, creative tables, expert groups were organized, at which the competence-oriented academic approach was argued. The transformation of internal work processes and cycles was carried out, as well as the formulation of a single cascade of target, information, and technological aspects of continuing medical education programs [1]. Conducting venues was a modern and sought-after achievement of KSMIPGTCE. At the Department of General Surgery of the Faculty of Im-
provement of Physicians of KSMIPGTCE in 2006–2012, a
group of clinical leaders developed the principles of research
and longitudinal competencies of trained specialists, the
principles of obtaining information about objects, their dy-
namics in an independent search and analysis of parameters.

For the last decade, medical institutions have been more
interested in financing the system of postgraduate medical
education in the KR than the state. This is explained by the
fact that they were ready here and now on the ground to
improve the professionalism of their colleagues and employees.
At the legislative level, there were several obstacles that led to
a decrease in education quality and student motivation. The
system of scholarship encouragement would significantly
ease the burden for medical institutions and stimulate doc-
tors to a non-stop academic process.

To enhance distance learning courses, KSMIPGTCE
used a process including multi-method research, monitoring,
and evaluation [12]. Creating a high-quality educational pro-
gram in the management and quality assurance of medical
services came out in the first place for the institution. In such
a program, a balance and interaction of the pedagogical and
experimental components was necessary. The translation of a
standardized service quality management curriculum became
the basis for a creative individual approach and proposals for
transforming it. A review and study of preclinical, clinical
practice, a selection of essential parameters, the ability to
work in a team, to be an individual and part of a system at
the same time was needed [5]. The institution has developed
a system of internal audit and monitoring of distance learn-
ing courses based on Standards and Guidelines for Quality
Assurance in European Higher Education Area [17], as well
as the National Standard of the Russian Federation of the

The question of the competitiveness of doctors was of par-
ticular interest. The individuality and subjectivity of a medical
worker, the ability to hear and analyse information, synthesize
outstanding volumes of knowledge, show perseverance and
diligence, and learn data and facts outside traditional skills
came to the fore. KSMIPGTCE has implemented a point-
rating system (PRS) that is designed to encourage motivation
to learn and improve skills [12]. The unconditional advantages
in the competitive environment of doctors were scientific de-
grees of specialists, additional certificates or diplomas in ad-
ministration, management, Master of Business Administration
degrees, and other academic improvements. The communica-
tive component is very important for establishing contact with
both patients and colleagues [10]. The adaptation of a resident
doctor to clinical practice is easier if the head clinician is ac-
tively involved in practice, does not use methods of pressure
on students, and manifests himself as a mentor.

The program-target method in KSMIPGTCE was based
on the priority of integrating education and practice into de-
partments and courses with state and social support. The goal
was to draw up a collective program for the training and use
of medical personnel in Kyrgyzstan, as well as participation
in the fortification of the scientific and practical potential of
regional and subregional services. Coherence between the
programs of the institutions of higher education, local medi-
cal centres, and centres of graduate education would lead to
rapid progress, collegiality, and novelty.

In 2023, in the system of additional education based on
competencies, there is a need to reconfigure education for
specific practical purposes of the state and the KR health-
care system. To implement such tasks, new approaches to
technologies in the pedagogical process, modern methods of
remote information supply, innovative developments, narrow
disciplines, and modules are needed [5]. In Osh, there is a
modernized centre for vocational guidance and training of
specialists, which has successfully used the latest programs
and principles of personnel training. Equally important is
the financial support of such local centres [18]. Regional
budgets are not able to maintain career guidance centres on
their own; employers in the industry are involved for finan-
cial support. As a result of the activities of the centres, highly
specialized, competent specialists with education at the level
of international quality standards entered the labour market.

At KSMIPGTCE, postgraduate education is built on
the principles of dualism. This system was first formed and
successfully applied in Germany. The German dual system
is a special approach to education, which has developed due
to the rich history of the country, the stages of its indus-
trial development, political reforms, and the public. Many
scholars have analysed the formation of German dualism,
such as L. Honchar [19]. The connection between educa-
tional institutions and industries was ideologically, culturally,
and religiously considered as a single demanded system for
the development of skills, the preservation, and enhance-
ment of spiritual values, and national education paradigms.
Dualism contributed to an increase in the level of educa-
tion of specialists in the post-war period, accumulated the
country’s historical experience, and supported the cadre
of professionals in various industries in Germany. Thanks
to this approach, German specialists were in high demand
in the labour market. The modern problem of the German
dual system discussed at the congress in Berlin in 2018 was
to increase the share of digitalization and robotisation in
the economy and demographic regression. Increasing flex-
ibility and degree of adaptation to new market require-
ments, focusing on vocational education of given categories,
were considered [20]. Armed with the experience of Ger-
many, it is necessary to take into account the importance of
timely career guidance for specialists, disciplinary expan-
sion, and involving in the subjects of study the principles of
improving the quality of services provided.

In 2013, KSMIPGTCE updated the content of 27 edu-
cational programs. Their content was based on such prin-
ciples as the continuity of the academic process with annual
assessment. The principle of conformity spoke about the
subordination of learning processes to all regulations, laws,
national and international standards, and facts of evidence-
based medicine. The principle of equality and accessibil-
ity of additional education at different levels of education
implied the absence of age, religious and other types of
discrimination. Doctors’ certification, as a method of as-
sessing the level of professionalism, has served in the KR
since 2000 as one of the forms of training through which
medical excellence is determined. Certification initially
acted as an incentive for medical professionals to gain in-
depth knowledge of theory and practice, to develop their
individual talents and aspirations in medicine. The dyna-
mics in the number of doctors certified by the KSMIPGTCE is clearly shown in Fig. 1.

Positive dynamics inform the state about the correct choice of educational programs in KSMIPGTCE, as well as the growing responsibility of doctors for self-education [21]. Ultimately, the annual increase in the number of certified doctors is directly proportional to a decrease in the working population of the KR and in the economic burden on the state in providing treatment to the population [22, 23]. Correct medical care for taxpayers is the economic platform of any country. Until 2026, the KR plans to establish a Council for the Development of Continuing Medical Education, in which the main role will be inherited by KSMIPGTCE. The Institute will have to coordinate all participants in the educational process, build up intra-program communications, provide methodological support, transform the organizational structure of continuing medical education, develop terms of reference, web lessons, master classes, and other tasks.

Since the quality management of medical services occupies a leading position in the spectrum of tasks of KSMIPGTCE, it is expected to focus on the issues of curricula, the development of internal regulations and standards, and independent accreditation of scientific and educational cycles and programs [14]. Thanks to the training of specialists not only in narrowly focused topics, but also in the basics of economics, management, information technology, and personnel policy, as a result, a trained doctor or clinical resident will significantly increase their competitiveness in the labour market.

One of the effective methods of advanced training for working personnel was rotational. This meant a change in the position of a medical officer within the same department or medical institution. The advantage of rotation was the change in familiar and comfortable work processes to a new environment, functions, tasks, and team. This technique contributed to the formation of an unconventional view of current tasks, the breakthrough of novelty, poly-qualification. Physicians improved social adaptation, practical interchangeability, and learning ability [24]. From the point of view of the competency-based approach, the rotation of trained employees contributed to an increase in the level of subjective cognitive abilities. KSMIPGTCE modernized the system for assessing the quality of educational cycles, promoted the development and improvement of information-based learning, and developed applied practices to create professional competencies. The formation of new approaches to adjusting the management of personnel policy was carried out. The foundation was laid for an expert-methodological division in the field of certification of vocational guidance and standardization. Thanks to the annual PRS, the assessment of competencies, qualifications, and professionalism has become clear and structured. This approach allows each individual doctor to independently assess the level of annual improvement in the profession and pay attention to gaps or shortcomings in the work.

**Discussion**

The practice of introducing competency-based educational procedures emphasized results and student orientation. The new evaluation system is extremely important. In the work of H. Bok et al. [7], the quantitative assessment is described that was used in competency-based learning. Transcripts were coded, real feedback from students was collected, and feedback from the student to the teacher was important. All this stimulated self-study and the compilation of an individual portfolio of knowledge. But after a while, a shortcoming of the system was exposed, which consisted in the difficulty of communication between the faculty and students, the detailing of grades, which significantly reduced the expected effect. It is concluded that a unified assessment system is not universal, it is necessary to develop a holistic methodology for the results by combining the tools of audit, monitoring, evaluation, communications, and motivation. The use of program assessment will greatly simplify the learning system itself and will lead to an increase in the reliability of evidence-based information. The principles of a competence-oriented approach in the postgraduate education of medical workers are based on the realization of the employee’s own potential, versatile socialization, the possibility of individual planning, forecasting, and motivation of the results of one’s training, and the organization of a self-education structure.

The experience of introducing a competency-based approach in the postgraduate training of medical residents in the People’s Republic of China has been successful. Scientists Y. Qin et al. [25] and Q. Chen et al. [26] emphasized humanistic literacy, collegiality in decision-making, interpersonal communication, and professional ethics. However, in 2016, F. Zhou et al. [8] cross-sectioned the results of this approach and identified previously unaccounted for shortcomings. These included excessive standardization and limitation of the individual initiative of doctors, a low level of knowledge gained during training. When compared with KSMIPGTCE programs, recommendations can be made. First, a clear scoring or other system for evaluating the knowledge of doctors is needed. Secondly, assessment indices can be developed to monitor skills and practices. Thirdly, the organization of live communication, exchange of experience and feedback between mentors and students, debates, discussion of controversial cases will encourage the doctor to think outside the box, use science and practice for innovations and discoveries. All this was proposed and implemented in the KR.

American scientists S. Jagpal et al. conducted a study on the application of theories and strategies at all levels of medical education. The purpose of the work was identical to one of the goals of this study — improving the quality of medical services. It was the section of postgraduate education that initiated the introduction of a clause on patient safety in the curricula. Competence-based learning focused on the outcomes and results of the trainees required the de-
development of a correct and transparent assessment system, and offered summary reporting on the work done. The first consideration was the reflexive strategy that KSMIPGTCE should adopt. The trainees were asked to draw a conclusion based on an already committed medical error and develop recommendations to prevent such failures in the future. The next strategy was deliberate practice. It was said in the content that theory is the result of polished practice, and if the sequence changes, then the practice becomes deliberate, and skills are easily reproducible.

The University of Manchester constantly recruits highly qualified medical specialists who are ready to train certified doctors, apply a competency-based approach, modern methods, models, and training programs, encourage student initiative, and motivate them for results [27]. For the KR, valuable experience can be constant financial incentives for teachers, material compensation for the time spent, as well as the opportunity to improve their own qualifications, since many experimental procedures are carried out. But in order for the institution itself to cover the costs of continuous medical education, it must initially be economically provided from the regional or state budget.

On the basis of the Royal College of Physicians and Surgeons of Canada, Professor D. Blouin [28] conducted pilot testing of employees. The purpose of the work was to identify the percentage of use of competencies in medical education, identify the main components of education based on competencies, and the benefits of this approach for the emergency medical service in the country. Medical workers responded in writing to questions in six sections, and there was also a survey. As a result, in more than 80% of cases, the competency-based approach was recognized as effective in the educational cycles of residency. The College of Family Physicians of Canada has established competency committees and coaching groups that meet periodically with students to discuss the current educational process, hear feedback, recommendations, and requests for adjustment [29]. Such a positive experience should be adopted by KSMIPGTCE specialists. The creation of expert groups with an individual approach to each individual doctor in training is required, as well as the formation of open tables where practising doctors, researchers, and other specialists will exchange opinions, experiences, comments.

As a result of economic reforms carried out in Vietnam, private educational institutions began to function in the country along with state ones. Due to many years of academic contacts and connections with foreign institutions, the educational process of Vietnam has been enriched by European and Western experience. A competency-based curriculum at the higher education level was developed and implemented. The difference of the new model consisted in emphasizing the importance of family medicine, clinical competence, collegiality in decision-making at the workplace, increasing the knowledge of trainees through an individual approach. With the assistance of the scientists T.D. Tran et al. [30], a cross-section of knowledge for trainees and confirmation of acquired competencies were conducted. It consisted of a list of skills for the doctor, from physical examination to monitoring the results of therapy. Clauses on compliance with legal norms and attitude towards the patient are also included. Such a program was compared with the parameters of the Reporter-Interpreter-Manager-Educator model and an overall score was given [31]. The Republic of Kyrgyzstan can take into account the use of such an empirical approach.

The problem of competence-oriented programs used in the KR was to transform the curricula, the algorithms of which were inherited by the teaching staff of doctors from the past decades. The plans and structure of the scientific process must be formatted at the level of the first courses of universities. Thus, identity will be achieved when the student moves to a higher scientific educational level. The reform of university teaching and assessment methods should take place in accordance with the standards of the European Association for Quality Assurance in Higher Education [17]. It is also important to update the methodology for assessing the quality of education and the level of knowledge gained by students.

Competence-based learning prioritizes the learner, not the teacher, as it used to be. The existing evaluation algorithm in KSMIPGTCE can be supplemented by dividing them into stages. At the first stage of assessment, it is told about the accuracy of determining one or another chosen competence, which students should have as a result of training. The second stage involves a real slice of knowledge in the form of screening and comparison of the results obtained with the planned ones. The final stage exposes certain aspects of the educational process [32]. The questions of flexible restructuring of stakeholders to a competency-based program remain open.

It is also required to attract foreign graduates of medical universities for postgraduate studies in the Republic. To do this, it is necessary to modernize the actual bases for conducting classes, provide information about the benefits of studying in the KR on news sites on the Internet, thematic headings of television, social networks, and other sources [33]. The requirements of employers to the level of qualification of applicants should be taken into account [34–36]. It is worth highlighting the transparency in the KR of such requirements and the consistency with them in the structure and curriculum [37]. Thanks to the KR’s competency-based approach to continuing medical education, a professionally trained and modern-oriented specialist enters the labour market.

Conclusions

The goal of this scientific work was achieved by highlighting the existing educational programs based on competencies in the Republic of Kyrgyzstan. Kyrgyz State Medical Institute of Post-Graduate Training and Continuous Education named after S.B. Danyyarov successfully implemented and broadcast progressive professional models of continuous education, created favourable conditions for the development of competencies, stimulated teachers and students to bring ideas and novelty to the methodology of programs, motivated individual social activity of training units. The successful implementation of the Triad Synthesis projects, professional and pedagogical practical platforms, and the introduction of internal control and audit have made it possible to summarize the progress and advancement in the constructions of continuous postgraduate education in the KR.
Medical institutions were interested in the postgraduate qualification growth of their personnel, participated in financial and informational support for the training of medical workers. The constant professional development of employees corresponded to the idea of a potential state order for positions and titles of doctors, and replenishment of the personnel response in the most vulnerable sectors of healthcare. The leaders of medical institutions noted the success of new programs for additional education, as they saw both economic and social effects. Under the condition of improving the programs for additional education, the old boundaries of outdated processes, attention to the problems of information, material, and technological support of clinical bases have been scaled up. KSMIPGTCE has adapted the medical workforce to the labile and rapid changes in the education and healthcare labour market. As a result, the competitiveness of doctors has significantly increased both at the regional and national levels. In addition, doctors were recommended to engage in self-development, learn foreign languages, and be socially active.

The introduction of the principles of the German dual system into the educational process of the KR brought together theory and practice, substantiated the weight of the current mechanism of competencies in the workplace, individualized the doctor and allowed him to socialize favourably. However, in the future it is necessary to consider the disadvantages of the dual system and prevent them. The balance between the demand of students and the supply of specific medical institutions was not always stable. With the help of state and regional regulation, a compromise was found, which made it possible to additionally involve previously unpopular jobs among young professionals, to stimulate applicants financially and informationally. The result of the work of KSMIPGTCE was the systematization of the application of theoretical basis simultaneously with the parameters of clinical practice. Seminars, training classes, simulation integrating of doctors were held, which simplified the algorithm for testing the theory in practice.

Given the concepts, programs, and educational models of KSMIPGTCE, a whole range of needed future research has opened up. Conducting an experiment, anonymous testing, open communication tables will allow looking into the learning process from the inside, see the process through the eyes of a participant: answer questions about the possibility of simultaneously using a formative and summative assessment, open communication tables will allow looking into the integration of doctors were held, which simplified the algorithm for testing the theory in practice.

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