Kyrgyzstan: The School as a Center for Solution Design (Schools2030)

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Abstract

In this article, I analyze the experience of Kyrgyzstan - a country that, facing a profound crisis in the quality of education (nearly half of the students demonstrate knowledge below the established national standards), has chosen a path fundamentally different from most educational reforms. Instead of imposing solutions "from above," Kyrgyzstan, through the Schools2030 program, relies on teachers as the primary authors of educational change [1], [2]. Relying on data from the program implemented by the Aga Khan Foundation with the support of UNESCO and the Ministry of Education and Science of the Kyrgyz Republic [3], as well as on specific examples of school innovations - from the "Mathematics Treasure Chest" to the "Young Eco-Leaders" project [5], [7] - I show that the Kyrgyz experience is simultaneously inspiring and limited. Inspiring, because it demonstrates how Human-Centered Design and trust in teachers can yield real, measurable results: over 5,400 students have shown progress of more than 20% in early literacy, numeracy, and socio-emotional skills [3]. Limited, because the program covers only 70 schools and 30 kindergartens out of many thousands, remains dependent on external funding, and, most importantly, does not offer a systemic approach to the diagnostics and development of specific mental mechanisms through the unique abilities of each child [12]. I also show that the Schools2030 model, despite all its attractiveness, fundamentally diverges from the communicative-cognitive framework of personality (CCFP) model: it does not provide an operational definition of which specific thinking mechanisms should be developed, nor does it offer a holistic theory of personality as a framework rather than a set of competencies [11], [12].

Keywords: Kyrgyzstan, Schools2030, Human-Centered Design, teacher innovation, micro-innovations, holistic learning, PISA, communicative-cognitive framework of personality.

Introduction: Why Kyrgyzstan

Kyrgyzstan is a country that for a long time remained outside the scope of my research attention. And this, I admit, was a mistake. Because it is here, in this small mountainous country of Central Asia, that one of the most interesting and, in my view, promising educational experiments of our time is being implemented [1], [2]. We are talking about the Schools2030 program - a global ten-year initiative implemented in ten countries worldwide, working with 1,000 preschool and school educational organizations. In Kyrgyzstan, the program covers 70 schools and 30 kindergartens in the Naryn, Osh, Batken, and Chuy regions, as well as in the city of Bishkek [1].

What makes this program special? It stems from a simple but radical conviction: teachers, given the right tools and conditions, can become the authors of educational change [3]. Instead of imposing solutions "from above," Schools2030 provides teachers with Human-Centered Design (HCD) tools and invites them to independently identify problems, develop solutions, test them, and share their experiences [8]. This is not just "another reform." It is a shift in the very paradigm - from "top-down" reforms to "bottom-up" innovations. From external experts to teachers as the primary agents of change. From uniform solutions to context-sensitive innovations [3].

Here it is appropriate to recall the image of the tunduk - the central circle in the dome of a Kyrgyz yurt. The tunduk is not just an opening for smoke and light. It is the structural center that holds the entire yurt: if the tunduk is removed, the felt walls and poles lose their shape and the structure falls apart. Schools2030 is like the felt walls and poles: tools, innovations, teacher solutions. They make the yurt (the school) beautiful and functional. But without the tunduk - without a theory that holds everything together - the yurt remains a collection of separate elements. The CCFP model is precisely this tunduk. It provides the structural foundation without which even the most brilliant innovations do not coalesce into a holistic system of thinking development [12].

Historical Context and Reasons for Reforms

Kyrgyzstan, like other post-Soviet countries, inherited an educational system from the USSR that was oriented towards preparing disciplined executors for an industrial economy. During the Soviet period, Kyrgyzstan achieved impressive successes: the literacy rate grew from 16.5% in 1926 to 99.8% in 1979 [1]. This was colossal progress. However, after the collapse of the Soviet Union, the education system faced a profound crisis. Economic decline, underfunding, outdated curricula, and low teacher salaries all led to a rapid decline in the quality of education. Today, as noted in the Education Development Strategy of the Kyrgyz Republic for 2021-2040, nearly half of the students demonstrate knowledge and skills below the established national standards [1]. This is an alarming indicator that calls into question the very future of the country.

In 2021, the Education Development Strategy of the Kyrgyz Republic for 2021-2040 was approved [1]. It sets ambitious goals: ensuring access to quality education for all, regardless of socio-economic status, ethnicity, religion, or gender. Special attention in the strategy is given to a holistic approach to learning, aimed at developing the physical, intellectual, cognitive, social, and emotional abilities of each student [1]. This is an important step forward - a recognition that education cannot be reduced to the transmission of knowledge, but must develop the personality as a whole [12]. However, the strategy remains at the level of declarations if there are no mechanisms for its implementation. And it is precisely here that the Schools2030 program steps onto the stage [2].

The Three-Step Model of Schools2030

The Schools2030 program offers a clear, operational model of educational change, which consists of three steps: Assess, Innovate, and Showcase [2], [3]. In the first step, teachers assess the level of holistic learning of students and the state of the classroom environment using context-relevant assessment tools. In Kyrgyzstan, this process was carefully prepared. The National Advisory Committee, which included representatives of the Ministry of Education and Science, the Kyrgyz Academy of Education, the Republican Institute of Advanced Training, and other bodies, defined the priority areas of learning [2]. In the second step, teachers collaborate with students and the school community to develop targeted classroom innovations using Human-Centered Design tools [8]. Human-Centered Design is a methodology that places user needs at the center. In the context of education, this means that teachers do not simply "implement" ready-made solutions, but design them together with students and parents [8]. As Nazira Zholdosheva, the national coordinator of Schools2030 in Kyrgyzstan, notes: "In two days, groups of teachers identified very specific problems and generated surprisingly simple, yet at the same time important, ideas on how to make the school or kindergarten interesting for students" [8].

In the third step, classroom innovations are linked to changes at the educational system level through dialogue between teachers and decision-makers, providing reproducible models for scaling [2], [3]. This, in my view, is the most important and simultaneously the most difficult step. Classroom innovations must not remain local success stories. They must influence educational policy as a whole. And here Kyrgyzstan is demonstrating encouraging results. Schools2030 participates in joint education sector reviews, supports the "Altyn Kazyk" curriculum reform, STEM integration, and digital learning. The program is positioned as a "key player in shaping educational policy" in the country [3].

For the CCFP model, the Kyrgyz experience is important precisely because of its distinction. Schools2030 answers the question "how" - how to organize teacher innovations, how to translate local solutions into systemic changes, how to engage the community. But it does not answer the question "what" - which specific mental mechanisms should be developed in the student. The mental mechanisms discussed in my model are specific tools of thinking, each of which can be diagnosed, evaluated in dynamics, and purposefully developed [12]. Schools2030 has created an infrastructure for teacher innovations, but has not defined what exactly should be developed. Human-Centered Design is a tool; CCFP is a goal. Without a clear understanding of the goal, even the most perfect tool remains useless.

Positive Experience and Achievements

The Kyrgyz Schools2030 program yields real, measurable results that deserve attention [3]. The most impressive result is the measurable progress of students. According to program reports, more than 5,400 students have demonstrated progress exceeding 20% in early literacy, numeracy, and socio-emotional skills. These are not just

"subjective impressions" of teachers. This is data collected using standardized assessment tools, and they show that an approach based on teacher innovations really works.

The program has generated many specific innovations that show how teachers can solve real problems in their classrooms [4], [7], [9]. A 4th-grade teacher from the Chuy region, Tumarkan Kulueva, faced a problem: her school, with 4,994 students, is the most overcrowded in the country. Students were inattentive and uninterested in mathematics [7]. Using Human-Centered Design, Tumarkan interviewed students and parents and identified the key problem: the lack of integration of mathematics with real life. In response, she developed the "Mathematics Treasure Chest" - a series of project tasks that connect mathematics with physics, chemistry, geography, technology, and other subjects. The result? Students "demonstrated a sharp increase in curiosity about mathematics" and began to see connections between different subjects. One student, Alexander, 9th grade, said: "Before, I didn't understand how mathematics was connected to other subjects... But now my teachers have shown me cool activities" [7].

Students at the school named after Kerimbay uulu Sarybai in the village of Emgek-Talaa in the Naryn region noticed environmental problems in their village. With the support of Schools2030, they developed the "Young Eco-Leaders: Clean Village - Healthy Future" project [5]. They presented their plans to the head of the rural district, who, together with the deputies of the rural council, allocated 100,000 soms to implement their ideas. Additional support was provided by the municipal organization "Ak-Emgek." The funds were used to conduct trainings on agroforestry and create a "green corner" at the school. The project won the Grand Prix in the regional competition "People's Hope - Serving the Future Generation," outperforming initiatives from 116 schools in the Naryn region. One participant, Aliya, shared: "The Schools2030 program expanded my academic knowledge, developed my 'green' skills, and fostered a sense of leadership and responsibility" [5].

In Kyrgyzstan, there is a serious problem of labor migration. Many parents leave to work, leaving children with their grandparents. Teacher Gulnara Minbaeva, using Human-Centered Design, developed the "Classes for Migrants" project - lessons that help children of migrants develop reading skills and strengthen their connection with their parents [9]. These examples show that teachers, given the right tools and support, are capable of creating solutions that truly change the lives of students.

One of the most important, albeit less measurable, achievements of the program is the growth of trust in teachers. As the study notes, Human-Centered Design "allowed them to look inside themselves, realize their moral obligation to improve student outcomes - igniting motivation and autonomy in their profession" [8]. Teachers cease to be mere "executors" of prescribed methodologies. They become designers of the educational process, authors of innovations, leaders of change [3]. It is important to note that the Schools2030 program does not exist in a vacuum. It works in close cooperation with the Ministry of Education and Science of the Kyrgyz Republic. In 2023, the ministry officially confirmed its readiness to develop and implement an educational program up to 2030 at the national level [6].

For the CCFP model, these achievements are not just "positive experience," but conditions of possibility. Measurable progress, teacher innovations, growth of trust, institutional support - all this creates an environment in which the formation of mental mechanisms becomes possible [11]. But a condition of possibility is not the same as a sufficient cause. The "Mathematics Treasure Chest" develops cause-and-effect thinking - but only if the teacher knows what cause-and-effect thinking is, how to diagnose it, and how to develop it systematically. Schools2030 provides the tools, but does not provide the theory of what exactly needs to be developed. CCFP provides this theory. That is why the Kyrgyz experience is so important for my model: it shows that teacher agency works, but it needs a theoretical foundation.

Negative Consequences and Challenges

However, despite all the impressive achievements, the Kyrgyz model faces serious challenges and limitations. The most obvious limitation is the scale. The Schools2030 program covers 70 schools and 30 kindergartens [1]. In Kyrgyzstan, there are thousands of schools. Even under the most optimistic scenario, the program cannot cover the entire country. As the report notes, the program "is in the transition phase from generating evidence at the school level to driving systemic change" [3]. This is an important and correct step, but it is only beginning. The question of how to scale successful innovations across the entire system remains open.

The second limitation is dependence on external funding. The Schools2030 program is funded by international donors [2]. This creates a risk: if funding stops, the program may halt. For sustainable change, not only external support is

needed, but also internal resources - state funding, institutional integration, political will [3]. The third, and for me the most important limitation, is the lack of systemic diagnostics of mental mechanisms [12]. The Schools2030 program assesses "holistic learning" - physical, intellectual, cognitive, social, and emotional abilities [2]. This is good. But it is not enough. In the CCFP model, I propose the diagnostics of specific, operationally defined mental mechanisms: establishing cause-and-effect relationships, critical thinking, Socratic dialogue, spatial imagination, forecasting, and others [12]. Each of these mechanisms can be measured, evaluated in dynamics, and purposefully developed [11]. Schools2030 lacks such a system. Assessment remains at the level of general "abilities" and "competencies," without a clear understanding of which specific thinking mechanisms should be developed.

The fourth limitation is the lack of a holistic theory of personality [12]. Schools2030 offers tools (Human-Centered Design) and a process (assess → innovate → showcase) [2], [8]. But it does not offer a theory of what personality is, how it develops, and what mechanisms underlie thinking. My CCFP model provides such a theory. It defines the communicative-cognitive framework of personality as an integrative structure that holds the entire "superstructure" of knowledge, skills, and experience. It identifies eleven mental mechanisms as specific tools of thinking. It proposes individualization through unique abilities as a key principle of development. Schools2030 lacks such a theory. And this, in my view, is its fundamental limitation.

Separate mention deserves the fact that Kyrgyzstan has not participated in PISA since 2009. However, a decision has been made that the country will participate in PISA 2025 [10]. This is an important step, but it also carries risks. PISA is a tool that measures a limited set of skills. If Kyrgyzstan focuses exclusively on PISA results, there is a risk that reforms will be subordinated to "teaching to the test" rather than developing thinking. As I have already shown in previous articles, an orientation towards PISA can lead to a narrowing of educational goals and ignoring what is truly important for personality development [12].

For the CCFP model, these negative consequences are not just "problems of the Kyrgyz school." They are symptoms of a deeper phenomenon: a reform that changes tools and processes, but does not change the cognitive apparatus of the participants, inevitably reproduces the old paradigm [11], [12]. Limited scale, dependence on donors, lack of systemic diagnostics, lack of a holistic theory - all these are consequences of the fact that Schools2030 has not placed the diagnostics and development of specific mental mechanisms at the center. It has changed the "how" of education, but has not changed "what" it forms. CCFP offers this "what."

Contradictions with the CCFP Model

Now I want to move on to what is most important to me: the fundamental differences between the Schools2030 model and the communicative-cognitive framework of personality (CCFP) model [11], [12]. The first and most fundamental difference: Schools2030 is a set of tools, while CCFP is a theory [2], [12]. Schools2030 gives teachers Human-Centered Design, assessment tools, and the "assess → design → showcase" process [8]. These are valuable tools. But they answer the question "how," not "what." How to develop innovations? How to assess progress? How to scale success? CCFP answers the question "what." What is personality? What is thinking? What mechanisms underlie it? How do they develop? How to diagnose them? [12] Tools without theory are like a ship without a map. It can move, but it is unknown where it is sailing. Schools2030 provides the ship (tools), but does not provide the map (theory of thinking development).

The second difference: Schools2030 operates with the concept of "holistic learning," while CCFP operates with the concept of "mental mechanisms" [2], [12]. "Holistic learning" is a good, but vague category. It includes physical, intellectual, cognitive, social, and emotional abilities. But it does not answer the question: which specific cognitive abilities should we develop? How to measure them? How to track dynamics? [12] "Mental mechanisms" are specific, operationally defined tools of thinking. Each of the eleven mechanisms can be diagnosed, evaluated in dynamics, and purposefully developed [11]. This is not a vague "holism," but a clear structure.

The third difference: Schools2030 relies on innovations, while CCFP relies on systemic development [3], [12]. Schools2030 encourages teachers to develop "micro-innovations" - small, local solutions to specific problems [3]. This is valuable. But micro-innovations, even the most successful ones, do not automatically add up to systemic development. CCFP offers systemic development - not of individual innovations, but of the entire educational practice. This is not a "project" or a "program." This is a paradigm shift: from the conveyor-belt school to the school

of thinking, from the transmission of knowledge to the development of mental mechanisms, from unification to individualization [12].

The fourth difference: Schools2030 does not offer individualization through unique abilities [12]. In Schools2030, teachers develop innovations for the entire class. They take into account the needs of students, but they do not make the unique abilities of each child the "entry point" for the development of all other mechanisms [3]. In CCFP, on the contrary, individualization through unique abilities is a key principle. A child with musical abilities develops cause-and-effect thinking through the analysis of musical structures. A child with technical abilities does so through construction and the analysis of mechanisms. This is not "adapting" learning to the child's abilities, but using their strengths as a lever to develop the entire thinking system [12].

And finally, the most important difference. Schools2030, like most other educational models, does not realize the epistemological significance of developing thinking [11]. As I substantiated in the article "Epistemological Recursion in Cognitive Science," modern neuroscience is stuck in the "trap of correlations": we record the results of brain activity, but we do not understand the mechanism of its self-organization. The way out of this dead end lies not in the plane of creating even more powerful scanners, but in the plane of the evolution of the knowing subject itself. Schools2030 does not set itself this task. It does not understand that the development of mental mechanisms in children today is the preparation of the very cognitive apparatus that tomorrow will be able to deconstruct the logic of its own brain. It remains within the framework of pedagogy, without reaching the level of epistemology [12].

It is precisely here that the Kyrgyz experience leads us to the key distinction that I discuss in detail in the article on epistemological recursion [11]. The hard problem is not a problem of missing data, but a problem of an exhausted conceptual framework. Kyrgyzstan tried to solve the problem of education within the existing framework - through teacher innovations and Human-Centered Design. But the framework remained the same: the school still prepares thinkers with linear, reductionist thinking, rather than subjects capable of an act of re-conceptualization [12]. For the CCFP model, this means: the Kyrgyz experience shows the boundaries of reforms that do not reach the epistemological level. But it also shows the potential: teacher agency is the first step towards such a level.

Conclusions and Lessons

What can we take away from the Kyrgyz experience? The first lesson: teachers are the main resource of educational change [3], [8]. Schools2030 shows that if teachers are given the right tools (Human-Centered Design), support, and trust, they are capable of creating solutions that truly change the lives of students. This is not rhetoric - it is confirmed data: more than 5,400 students have shown progress of more than 20% [3]. The second lesson: innovations must be context-sensitive [9]. The "Mathematics Treasure Chest" works in the Chuy region [7], "Young Eco-Leaders" in the Naryn region [5], "Classes for Migrants" where there is a problem of labor migration. Universal solutions imposed "from above" rarely work as well as solutions developed on the ground [3]. The third lesson: scaling is the main challenge. Schools2030 shows that it is possible to create successful innovations in 70 schools. But how to spread this success to the entire system? How to move from "school innovations" to "systemic changes"? This question remains open.

The fourth, and most important lesson for me: tools without theory are not enough [12]. Schools2030 gives teachers tools, but does not give them a theory of thinking development. It teaches them "how" to develop innovations, but does not answer the question of "what" exactly needs to be developed.

Here I would like to recall Chingiz Aitmatov and his image of the mankurt - a person deprived of memory and the ability to think independently. In the novel "The Day Lasts More Than a Hundred Years," Aitmatov tells how a person is turned into a mankurt, deprived of memory and will. A school that does not develop thinking risks producing mankurts - people who can follow instructions, but cannot think independently. Schools2030 tries to counter this: it gives teachers agency, the opportunity to create, experiment, and take responsibility. This is an important step. But without the CCFP theory, without a clear understanding of which specific mental mechanisms should be developed, even the most brilliant innovations risk remaining merely a temporary burst of activity.

It is precisely this clear understanding of "what" that the CCFP model provides [12]. It answers the questions that Schools2030 leaves unanswered. Which specific thinking mechanisms should we develop? Eleven mental mechanisms, each of which is operationally defined [12]. How will we diagnose their development? Through dynamic diagnostics, evaluating progress rather than a static level [11]. How will we take into account the uniqueness

of each child? Through individualization, where unique abilities become the "entry point" for the development of all other mechanisms [12]. Why do we need all this? Not only for "improving academic performance," but so that humanity can solve the "hard problems" of the 21st century, including the mystery of consciousness [11].

Kyrgyzstan has shown us that "bottom-up" innovations work [3]. But it has also shown that without a systemic approach to the development of thinking, without a clear understanding of which specific mechanisms we must develop, these innovations remain fragmented [12]. The CCFP model offers this systemic approach. It does not deny the value of teacher innovations - on the contrary, it gives them a theoretical foundation. It does not deny the importance of Human-Centered Design - but it supplements it with an understanding of what exactly needs to be designed. It is precisely this combination - the tools of Schools2030 and the theory of CCFP - that could, in my view, become the basis for a truly sustainable transformation of education.

References

1. Schools2030 Kyrgyzstan // Schools2030 Official Website.
2. Catalyzing Change: Schools2030's Transformative Journey in Education Across 10 Countries // UNESCO. - 2022.
3. From Schools to Systems: Schools2030 Annual Report // Schools2030. - 2025.
4. Travelling Back through 2025 // Schools2030. - 2026.
5. Youth Eco-Leaders in the Kyrgyz Republic Take Home Grand Prize in Regional Innovation Competition // Schools2030. - 2025.
6. В Кыргызстане успешно реализуется программа «Школы2030» // Кабар. - 2024.
7. Opening the 'Treasure Chest' of Mathematics – the story of teacher Tumarkan Kulueva // Schools2030. - 2023.
8. Kick-starting education innovations in the Kyrgyz Republic // Schools2030. - 2021.
9. Reflections on the Human-Centred Design process in Kyrgyzstan: an interview with teacher Gulnara Minbaeva // Schools2030. - 2022.
10. Kyrgyzstan // Schools2030 Country Page.
11. Kleymenov A. Epistemological recursion in cognitive science: mental mechanisms as a tool for overcoming the "hard problem" of consciousness // Fractal Academy. - 2026. - Issue 3. - Art. 1. https://fractal-academy.com/articles/article-3-1/
12. Kleymenov A. Basic mental mechanisms: the structure of the communicative-cognitive framework of personality // Fractal Academy. - 2026. - Issue 1. - Art. 5. https://fractal-academy.com/articles/article-1-5/

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