Transforming University Research and Education: Unleashing the Potential of Immersive Multimedia and AI-Assisted Blended Learning Through Online Gaming

Xiaohong Bao[1*]

[1]The Open University Of Shaanxi, Xi'an, Shaanxi, China, 710065

Corresponding Author: Xiaohong Bao, hongbaoxx@163.com

Abstract. In order to explore the current situation of university scientific research and education and formulate corresponding reform paths, this paper constructs an intelligent data processing model based on artificial intelligence-assisted hybrid learning to process science and education data, and on this basis, analyzes related factors and explores reform paths. Moreover, this paper deeply analyzes the operation mechanism of China's science and education combined with collaborative education, and combines artificial intelligence technology and auxiliary blended learning algorithms. At the same time, this paper conducts a systematic and comprehensive study of the driving mechanism, operating mechanism, and guarantee mechanism that runs through the entire process of front-end, middle-end and back-end. In addition, this paper not only sorts out the main mechanisms involved in its driving and operation, but also analyzes various obstacles in its operation and development. Finally, this paper researches and constructs its guarantee mechanism, so as to put forward targeted policy recommendations.

Keywords: artificial intelligence; blended learning; scientific research and education; reform; Learning through Online Gaming
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1 INTRODUCTION

The concepts and practices of science and education combined with collaborative education have experienced slow development in the past few decades, and not only have rapidly risen to the height of national strategy, but also have reached an important period of strategic opportunity. Facing the national strategic deployment, as the main force of talent training and scientific research, colleges and universities and research institutes should be duty-bound to give full play to their respective advantages, break through institutional barriers, and achieve the ultimate goal of science and education combined with collaborative education [13]. Therefore, how to analyze the mechanism of science and education combined with collaborative education scientifically and systematically to maximize the organic combination of colleges and universities and scientific research institutes, so as to promote the sustainable and effective development of collaborative education has become a major problem that needs to be solved at present [4]. In contrast, China's traditional higher education is deeply influenced by the former Soviet Union's university model and implements a policy of separating science from education.

In the early days of the establishment of the new Chinese higher education system, we implemented the policy of "learning from the Soviet Union in an all-round way" and imitated the Soviet Union's system of separating higher education and scientific research. After the reform and opening up, with the development of the country, the level of scientific research in colleges and universities has been continuously improved, but the ideas and concepts of higher education have not changed accordingly. At the top of higher education thinking, education is still regarded as an activity focused on imparting knowledge. Moreover, in the mainstream thinking, the concept of "higher education quality = talent training quality = teaching quality" still plays a leading role. In addition, scientific research is more oriented to improve teachers' scientific research ability and academic level, and its direct effect on talent training is not obvious. The current situation of separation of science and education has become a major obstacle to the cultivation of innovative talents in my country's colleges and universities [10].Online gaming can actually provide unique opportunities for students to acquire various skills and competencies. Many games require strategic thinking, teamwork, problem-solving, and decision-making abilities. These skills are highly relevant in today's rapidly changing world and are sought after by employers. By integrating online gaming into the education system, colleges and universities can tap into its potential to foster innovative and adaptable talents

At the end of the 20th century, as my country's "science and technology is the primary productive force" and "rejuvenating the country through science and education" strategies were successively put forward, the integration of science and education has gradually received widespread attention, especially by research universities, and regarded it as an important means of talent training. And the way has become an important feature of the world's high-level universities. However, with the continuous development and extensive exploration of practice, although there are in-depth practices of joint training of graduate students through typical models such as school-enterprise joint training, industry-university-research cooperation, etc., it is aimed at the combination of higher education and scientific research institutes and high-quality collaborative training. Systematic and in-depth research on talents is rare. Judging from the development process of the theory and practice of the cooperative education of science and education in my country, the cause of cooperative education of science and education in China started late and developed slowly in the decades after the founding of New China. However, since the beginning of the new century, my country has entered a period of important strategic opportunities for the cooperative education of science and education, showing an unprecedented development momentum, and gradually emerging three typical models such as the joint training model of postgraduates, the model of science and technology talents, and the model of integrating science and education to build a college. The coexistence of models. However, at the current stage, my country's science and education combined with collaborative education is developing rapidly, but there are many problems at the same time. For example, the cooperation effect between most units is not significant, and the units with good cooperation results are mostly concentrated in domestic comprehensive research-oriented higher education institutions. Between schools and powerful scientific research institutes, local ordinary colleges and general scientific research institutions have not participated in the cooperation, and the scope of cooperation still has certain limitations; the cooperation foundation is still good, and the depth and breadth of its cooperation still needs to be expanded. Strengthen etc. The fundamental reason is that the institutional mechanisms in the process of cooperation have not been straightened out, and there is a lack of mutual cooperation guarantee mechanisms.

2 RELATED WORK

There is very little research literature that regards "science and education combined with collaborative education" as a specific research object. Most of the literature focuses on "industry-university-research cooperation" to enhance the comprehensive strength and core competitiveness of each subject. Among them, there are also documents that have researched and explored the driving force, communication and coordination, trust, interests, and guarantees of universities and research institutes to cultivate high-quality talents in cooperation with each other, providing effective theoretical guidance for the practice of foreign collaborative training of talents [8]. The relevant research is summarized as follows. Foreign scholars have conducted in-depth research on the driving mechanism of industry-university-research cooperation. Unlike our country, in addition to the various dynamic factors in the usual sense, trust and commitment are also included in the category of dynamic factors. It almost runs through the entire process of industry-university-research cooperation and plays a very important role[21] . The literature [6] researched the dynamic mechanism of the cooperation of industry, university and research to carry out scientific research and education activities. It believed that the main motivation of enterprises is to obtain complementary scientific research results, develop new products, enter new technological fields, communicate with university scientific research teachers, and improve the quality of research and development. Moreover, it believed that the main motivation of universities is to obtain more research funding, promote the transformation of research results, and explore new research fields. The literature [12] pointed out in the research of industry-university cooperation that the main challenge of successful cooperation does not come from within the cooperative research team, but from the response of the broader staff, who usually do not have research experience. Literature [16] studied how the relationship mechanism promotes the formation of trust in the cooperation between the United States, Japan, and South Korea, especially the strength and maturity of industry-university-research cooperation in various countries. Moreover, it conducted a survey of a number of industry-university-research institutions in these three countries and found that innovation vitality is a key mechanism for establishing trust between enterprises and universities, supplementing the formation of initial trust through cooperative bonds, partner reputation and contract security. The literature [5] studied the moderating effect of the relationship maturity of various trust bases under the background of university and industry cooperation. Through the analysis of 98 pairs of collaboration data, it is found that relationship maturity regulates the relationship between mutual communication and decision-making process and trust similarity.

Many foreign scholars have conducted extensive and in-depth research on the communication and coordination mechanism of industry-university-research cooperation in personnel training. The literature [19] believed that the university technology transfer office, as a professional management department for industry-university-research, scientific research and education, plays an important role in industry-university-research cooperation. The personnel of this department should have the ability to negotiate, coordinate, promote technology transfer, and have the ability to have interdisciplinary knowledge background. The literature [18] pointed out that governments of all countries support the ever-expanding cooperation between academia and industry, thereby enhancing the country's comprehensive competitiveness and wealth creation methods. Moreover, it believes that project management is the most direct factor that affects industry-university-research cooperation, and that successful industry-university-research cooperation projects have the characteristics of continuity of cooperation, mutual trust among partners, and good information communication. The literature [7] discussed the coordination mechanism of industry-university-research research through case investigations, and believes that industry-university-research partnerships provide a mechanism for strengthening knowledge transfer. In the literature [1], in the research on the mechanism of industry-university-research cooperation, it is concluded that in order to successfully transform research results into national economic benefits, it is necessary to combine industry needs with university research. At the same time, enterprises must conduct adequate research and negotiation with universities, and project research and development must involve industry participation to ensure their relevance. The cooperation between universities and enterprises starts from the initial stage of negotiation, and needs to understand each other, try to find common points and interests, and then establish an effective communication and coordination mechanism [17]. The literature [15] believed that university rankings can attract the attention of various stakeholders and eventually lead to its inclusion in the decision-making process. Based on this, he proposed a new association index for industry-university-research cooperation, which lays a foundation for future research on industry-university-research cooperation and university rankings.

3 OPTIMIZED ITERATIVE LEARNING CONTROL ALGORITHM BASED ON BLENDED LEARNING ALGORITHM AND DATA PROCESSING OF INDUSTRY, UNIVERSITY AND RESEARCH INSTITUTE

The hybrid leapfrog algorithm is based on natural selection and natural genetics. The basic idea is to use the principle of "survival of the fittest" to gradually approximate the given optimization problem (1), and finally its optimal solution is obtained[20].

$$\min_{u\in S} J\left(u\right) \tag{1}$$

Among them, there is variable $u \in S$, S is the algorithm search space.

The information transmission method of the Hybrid Leapfrog Algorithm (SFLA) is carried out by ethnic classification. The local search and the global mixing process are carried out interactively.

The optimized iterative learning control algorithm based on SFLA uses the norm optimization index in NOILC[20]:

$$\begin{cases} \min\limits_{u\in S} J_{k+1}\left(u_{k+1}\right) \\ J_{k+1}\left(u_{k+1}\right) = \left\|e_{k+1}\right\|^2 + \left\|u_{k+1} - u_k\right\|^2 \end{cases} \tag{2}$$

As the fitness function of the hybrid leapfrog algorithm, the optimal solution u_{k+1}^* for the next iteration is obtained through SFLA search. Among them, there is $y_{k+1}\left(t\right) = \left[Pu_{k+1}\right]\left(t\right)$. As long as the input (assuming that the problem (2) has at least one optimal solution), it can be used in the next iteration to ensure that the equation (3) holds:

$$\left\|e_{k+1}\right\|_2 \le J_{k+1}\left(u_{k+1}\right) \le \left\|e_k\right\|_2 \tag{3}$$

When the controlled object P in $y_{k+1} = Pu_{k+1}$ is a linear time invariant system (LTI), the optimal input can be obtained by formula (4):

$$u_{k+1} = u_k + P^* e_{k+1} \tag{4}$$

Among them, P* is the adjoint operator of P. This is a non-causal realization of the algorithm. There are the following conclusions for discrete linear time-invariant systems:

$$\|e_{k+1}\| \le \frac{1}{1+\sigma}\|e_k\| \tag{5}$$

For linear systems, the above algorithm is achievable. However, the nonlinear system p may not exist, so it cannot be realized by the adjoint operator P. For the control problem of nonlinear system, this paper uses SFLA to solve the optimization problem (2) in each iteration process. Therefore, for nonlinear systems, SFLA-ILC can ensure that its tracking error is monotonically convergent in the iterative domain[3].

We assume that there is at least one optimal solution u_{k+1}^* obtained by solving optimization problem $\min_{u_{k+1}\in U} J_{k+1}(u_{k+1})$ through SFLA, and e_{k+1}^* is the tracking error. In the hybrid leapfrog algorithm, the frog group U(k) evolves to form a new population U(k+1), and U(k+1) must contain the optimal frog u_k^* in U(k). Therefore, for the non-optimal frog $u_{k+1} = u_k^*$, we can make

$$\|e_{k+1}^*\|^2 \le J_{k+1}(u_{k+1}^*) \le J_{k+1}(u_k^*) = \|e_k^*\|^2 + \|u_k^* - u_k^*\|^2 = \|e_k^*\| \tag{6}$$

That is $\|e_{k+1}^*\|^2 \le \|e_k^*\|^2$.

The above conclusion can show that if the norm optimization iterative control can not find the expected input corresponding to the expected output, it can be guaranteed that the tracking error is monotonously convergent by introducing SFLA into the NOILC[9].

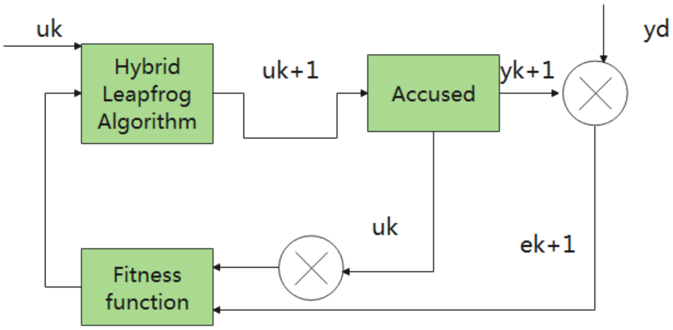

Figure 1: SFLA-ILC structure diagram.

Figure 1 shows the structure of SFLA-ILC. In the design of the SFLA-ILC algorithm, $J_{k+1}(u_{k+1})$ is used as the fitness function of the population, and $e_{k+1}(t)$, $u_k(t)$, and $u_{k+1}(t)$ in the iterative learning process are substituted into the fitness function $J_{k+1}(u_{k+1})$ (Among them, uk is known, there is $e_{k+1} = y_d - Pu_{k+1}$).The SFLA search is used to participate in the optimal input $u_{k+1}(t)$ of the next iteration process. $u_{k+1}(t)$ is saved and used as $u_{k+1}(t)$ in optimization problem $J_{k+1}(u_{k+1})$ in the next SFLA-ILC calculation.

In the actual realization process of the optimized iterative learning control based on SFLA, the control input variable $u_{k+1}(t)$ searched by the hybrid leapfrog algorithm is not a smooth curve, but a curve with "disturbance". This is because the random nature of the SFLA search principle determines the instant t every time, and the decision variable $u_{k+1}(t)$ participating in the SFLA search process is also random. The specific implementation method is in the next section.

Iterative learning based on the hybrid leapfrog algorithm is performed on the linear system with input constraints and the expected square wave system respectively to verify that the improved algorithm can achieve good results in the expected tracking of linear systems[2].

The following linear system is used

$$\begin{cases} x_i(i+1) = -0.1x_3(i) + u(i) \\ x_i(i+1) = x_1(i) \\ x_3(i+1) = x_2(i) \end{cases} \tag{7}$$

The output:

$$y = x_1 \tag{8}$$

The SFLA-ILC evaluation function (fitness function) is:

$$J_{k+1} = \|u_{k+1} - u_k\|^2 + \alpha \|e_{k+1}\|^2 \tag{9}$$

Among them, α is the weight of 0.01.

It can be clearly seen from Figure 2 that the optimal input $u^*_{k+1}(i)$ (dotted line) searched by the SFLA algorithm is a "disturbed" curve, and such an input function cannot be applied to the actual control system. This is because the optimization search process of the hybrid leapfrog algorithm is random, and the decision variable of the algorithm is the specific value of the input variable $u^*_{k+1}(i)$, $i \in [1,2,...23]$ used to participate in the next iteration. These two reasons make any two points $u^*_{k+1}(i)$ and $u^*_{k+1}(i+s)$ uncorrelated, which causes the input variable function to appear to be "disturbed".

The study found that "disturbance" directly affects $u_{k+1}(i)$. However, if the original control object is a low-pass filter, it will basically not affect the actual output and tracking error. Therefore, if a low-pass filter with the same bandwidth as the input $u_{k+1}(i)$ is applied, the $u_{k+1}(i)$ searched by SFLA will be a smooth curve without affecting the error. In order to verify this hypothesis, a low-pass filter is applied to the "disturbed" $u_{k+1}(i)$ in Figure 2 (dotted line)[11]:

$$u_{i+1}^{F}(i)=\alpha\begin{bmatrix}u_{k+1}(i-2)\ u_{k+1}(i-1)\ u_{k+1}(i)\\ u_{k+1}(i+1)\ u_{k+1}(i+2)\end{bmatrix}^{T} \tag{10}$$

It can be seen that this filter is not traceable. This is because $u_{k+1}(i)$ is effective before filtering, so for $s\geq i$, $u_{i+1}^{F}(i)$ is a function of $u_{k+1}(s)$. Figure 2 is the optimal input curve obtained when the number of iterations k = 6 and when the input constrained linear non-minimum phase system is simulated.

The expected output is:

$$\begin{cases}y_d(i)=0, i=1\\ y_d(i)=\sin\left(0.05\pi(i-2)\right), 2\leq i\leq 23\end{cases} \tag{11}$$

The constraints on the input are:

$$u_k(i)^{\min}\leq u_i\leq u_k(i)^{\max}, i=1,2,\ldots,23 \tag{12}$$

Among them, there is $u_k(i)^{\min}=-1.5$ and $u_k(i)^{\max}=1.5$, k =1,2,...23.

Figure 2 shows the original optimal input and the filtered optimal input found by the hybrid leapfrog algorithm when the number of iterations k = 6 for SFLA-ILC. Figure 3 shows the convergence curve of the fitness function of the hybrid leapfrog algorithm when the number of iterations is k=6. Figure 4 and Figure 5 respectively show the output tracking curve and error convergence curve of the system.

Figure 3 shows that the selected fitness function is gradually converging, which also verifies the feasibility of applying the hybrid frog leaping algorithm to iterative learning control ($\|e_{k+1}\|_2\leq J_{k+1}(u_{k+1})\leq\|e_k\|_2$).

Figure 4 shows the tracking effect diagram of the system (7) when SFLA-ILC is applied, and the number of iterations is k = 2, k = 4, and k = 6. It can be clearly seen that the system has been able to track the expected output curve well in the iteration, and it has been able to fully track the expected curve when k=6.

From the results in Figure 5, it can be seen that the SFLA-ILC algorithm can solve the optimization problem (fitness function) in the optimization iterative learning control well.

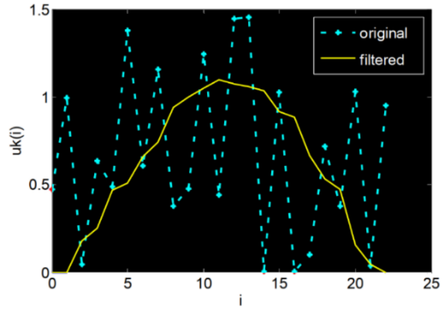

Figure 2: Iterative original and filtered control input when k = 6.

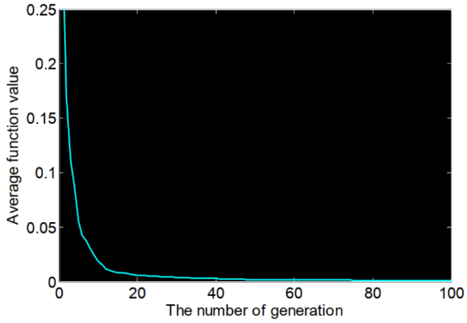

Figure 3: Convergence curve of fitness function.

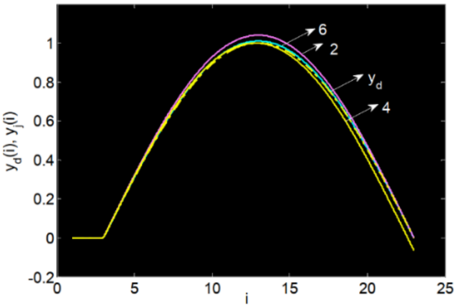

Figure 4: Expected output tracking curve.

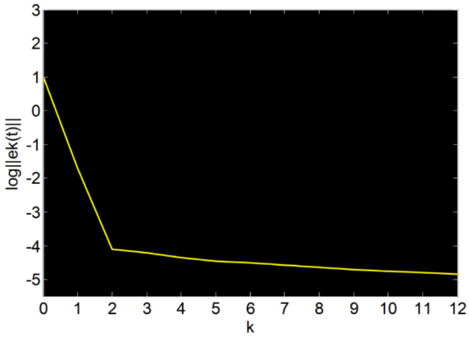

Figure 5: Error $\log\|e_k(t)\|$ convergence curve.

The following is a comparison of SFLA-ILc, CSA-ILC, GA-ILC based on Hybrid Leapfrog Algorithm (SFLA), Clonal Selection Algorithm (CSA) and Genetic Algorithm (GA) optimized iterative learning control algorithms SFLA-ILc, CSA-ILC, GA-ILC.

The following are the tracking curves of SFLA-ILC, CSA-ILC, and GA-ILC when the number of iterations is k = 2, k = 6, and the error convergence curves of the three.

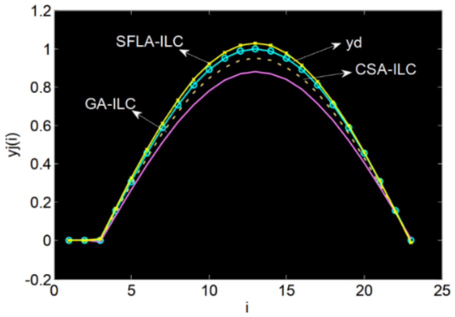

Figure 6: The tracking effect of SFLA-ILc, CSA-ILc, and GA-ILC when k = 2.

Figure 6 and Figure 7 are the tracking effect diagrams of the system (7) after applying SFLA-ILC, CSA-ILC, and GA-ILC, respectively, when the number of iterations is k = 2 and k = 6, respectively.

Figure 8 shows the error convergence curves of SFLA-ILC, CSA-ILC, and GA-ILC.

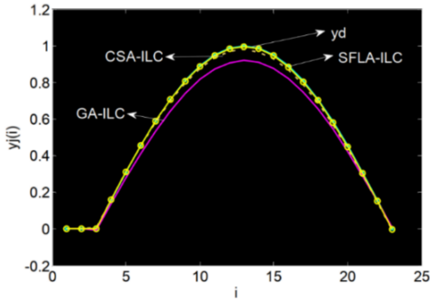

Figure 7: The tracking effect of SFLA-ILc, CSA-ILC, and GA-ILC when k = 6.

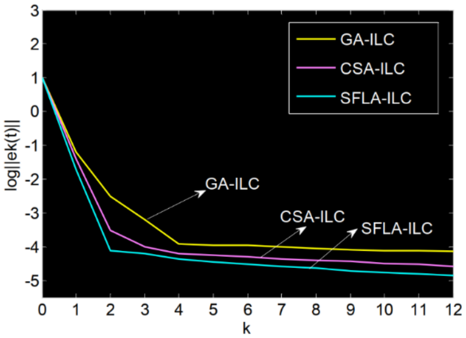

Figure 8: Error convergence comparison of SFLA-ILc, cSA-ILc, GA-ILC.

The zero-order holder is selected for sampling, the sampling time is 0.05s, and the iteration length is 4s.

The components of a class of saturated nonlinear industrial control systems are the saturated nonlinear part and the linear part. The saturated nonlinear part is shown in formula (13):

$$z(t)=\begin{cases}k\beta,u(t)\geq\beta\\ku(t),|u(t)|<\beta\\-k\beta,u(t)\leq-\beta\end{cases} \tag{13}$$

The linear part is:

$$G(s)=\frac{1}{2s^2+2s+1} \tag{14}$$

The expected output is:

$$y_d(t)=1.2(1-1/(1+i)^3),\quad i\in[0,20] \tag{15}$$

The parameter setting of SFLA-ILC is shown in Table 1. In the simulation, the following filters are also used for $u_{k+1}(t)$ obtained through SFLA optimization:

$$u_{i+1}^F(t)=\alpha\begin{bmatrix}u_{k+1}(t-2)\ u_{k+1}(t-1)\ u_{k+1}(t)\\u_{k+1}(t+1)\ u_{k+1}(t+2)\end{bmatrix}^T \tag{16}$$

Among them, there is $\alpha=[0.15\quad 0.2\quad 0.35\quad 0.25\quad 0.3]$.

4 THE CORE FOCUS AND REFORM PATH OF UNIVERSITY RESEARCH AND EDUCATION BASED ON ARTIFICIAL INTELLIGENCE-ASSISTED BLENDED LEARNING

From the perspective of cooperation between scientific research institutes and colleges and universities, the driving mechanism of science and education combined with collaborative education, as the driving force to promote and promote cooperation between the parties of "science" and "education", is a key link to induce and guide collaborative education. Moreover, it is the primary condition for the formation of science and education combined with collaborative education, and is the forefront influencing factor in the entire collaborative innovation process. It has a leading and fundamental role and its status is very important. Therefore, if we want to study the mechanism of science and education combined with collaborative education, we must first study its driving mechanism. Under the guidance of the "instability principle" of synergetics theory, this chapter constructs the "driving mechanism model of science and education combined with collaborative education" (Figure 9), so as to conduct a more in-depth study on the driving mechanism of science and education combined with collaborative education in my country from both external and internal perspectives.

The artificial intelligence hybrid learning system model constructed in this paper is used to process science and education data, and on this basis, relevant factor analysis and reform path exploration are carried out.

According to the "instability principle" of synergy theory, the "external competition" existing in science and education combined with collaborative education is its external drive. This "competition" is a basic relationship between interconnected individuals.

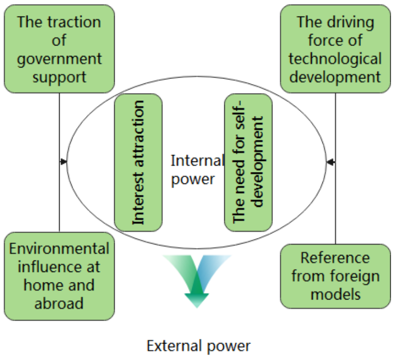

Figure 9: The driving mechanism model of science and education combined with collaborative education.

It is an activity and process in which systems or elements compete with each other in order to maintain individuality and strive to gain dominance and dominance. Therefore, the external driving mechanism of science and education combined with collaborative education can be defined as a driving mechanism that exists outside of the integration of scientific research and talent training.

The cause of science and education combined with collaborative education involves scientific research institutes, institutions of higher learning and their superior authorities. It is not only a science and technology enterprise of the country, but also an education enterprise. Moreover, its operation and development will inevitably be directly affected by national politics, economics and other factors. Therefore, administrative support and economic support from the government are the main driving force for the cause of science and education combined with collaborative education.

With the implementation of the relevant policies of the above-mentioned countries, the government's economic support has also been implemented accordingly. Economic support is mainly reflected in the state's direct financial appropriation or indirect financial concessions for the funds needed for scientific research. Scientific research is an important function of scientific research institutes and universities. The state's economic support for scientific research, especially major strategic cooperation projects or large scientific projects, will directly lead the cooperation between scientific research institutes and universities, and cooperate in scientific research. In the process of co-cultivating high-quality talents. Among them, the state's direct financial appropriations are divided into appropriations from the central government and local governments.

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The third scientific and technological revolution, marked by the invention and application of atomic energy, electronic computers, space technology, and biological engineering, has made scientific and technological breakthroughs in many fields, greatly accelerating the transformation of science and technology into productivity. Among the factors that promote economic growth, The proportion of science and technology continues to rise, and new technologies have become the most active factor in social productivity. The thesis that "science and technology is the primary productive force" has once again been proved and tested. Science and technology are the fundamental force that promotes social progress, and the progress and development of science and technology promote the development of the entire world. With the rapid development of science and technology in the world, scientific and technological cooperation has become the key factor and core force of the entire scientific and technological development, that is, scientific and technological development is not only inseparable from scientific and technological cooperation, but also promotes the gradual intensification and deepening of scientific and technological cooperation.

With the gradual recovery of China’s economy after the founding of the People’s Republic of China, due to the need for large-scale economic construction, more and more attention has been paid to the development of science and technology. Economic revitalization urgently needs the strong support of science and technology and the education system; in the late 1980s, the world's high-tech booming and the increasingly fierce international competition challenged China to aim at the frontiers of world high-tech development, condense and train top talents, and enhance comprehensive national power. Taking new opportunities, the reform of the national science and technology system was launched in due course. A series of science and technology and talent programs were launched successively, such as the "863 Program", "973 Program", the National Natural Science Foundation of The implementation of the “Plan” etc. across the country has provided scientific research workers in institutions of higher learning and scientific research institutes with complete scientific research facilities, while also bringing good scientific research opportunities and high-quality platforms to the majority of young students. This scientific research experience is Young students will continue to engage in scientific research in the future to lay a solid foundation and lay a good start, which will have a positive and far-reaching impact for them to enter the society and engage in other industries.

According to the "instability principle" of synergetics theory, the "intrinsic difference" that exists in the combination of science and education in collaborative education is its internal driving force. Therefore, the internal driving mechanism of the combination of science and education and collaborative education is defined as the internal driving mechanism that exists in the integration of scientific research and personnel training.

The internal driving force of any kind of cooperation comes from the common interests of both parties. Without the attraction of interests, cooperation cannot be produced, let alone be in-depth and lasting, and cooperation between universities and research institutes is no exception. The benefit factor is the fundamental driving force that promotes the formation of science and education combined with collaborative education. As the goal pursued by all parties, interest plays an important driving source role in the generation and development of science and education combined with collaborative education.

Development is the last word. As important institutions of the country, under the premise that higher education and research institutes do not take profit as their main purpose, they can only seek their own continuous development so that they can withstand the test of society and survive for a long time with the passage of time and historical progress. The fundamental purpose of higher education institutions is to cultivate talents, taking into account scientific research and serving the society. The quality of talent training, the level of discipline construction, the results of scientific research, and the ability to serve the society are important manifestations of the comprehensive strength of colleges and universities. These are directly related to the external reputation and social influence of colleges and universities. The higher the external reputation and the greater the social influence, the greater the support from the state and society, and the more resources for running a school. At the same time, the higher the level of running a school can be, the better it can be for sustainable development, and the closer it is to achieving the goal of a first-class university. The scientific research institute undertakes major scientific research tasks, obtains scientific research projects, and obtains scientific research funding as its main tasks. Scientific research strength, innovation ability, and academic achievements are the core competitiveness of scientific research institutes. Only by assuming more important national scientific research tasks, doing well in scientific research, and improving the ability to transform achievements, can they ensure constant prosperity and innovative development in the competition.

5 CONCLUSION

The cause of science and education combined with collaborative education is a systematic project involving the vital interests of various collaborative entities. As a basic and fundamental existence, its mechanism plays a vital role in the continuous and effective operation and development of science and education combined with collaborative education. Based on the perspective of cooperation between scientific research institutes and colleges and universities, this paper sorts out the research progress, evolution process, main models, and development status of my country's science and education combined with collaborative education. According to foreign practical experience of science and education combined with collaborative education, this paper analyzes and finds that there are still some practical problems and development difficulties in the course of science and education combined with collaborative education in our country. In addition, under the guidance of the theory of synergy, this research systematically sorts out and researches and constructs a science and education combined with collaborative education mechanism that runs through the entire process of science and education combined with collaborative education front-end to mid-end to back-end, and is based on a driving mechanism, an operating mechanism, and a guarantee mechanism.

Xiaohong Bao, https://orcid.org/0009-0008-5222-5961

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