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**ЖАСАЛМА ИНТЕЛЛЕКТ МЕНЕН ИШТЕТИЛГЕН ОКУТУУ МОДЕЛИ АТАЙЫН
ИННОВАЦИЯЛЫК ИНТЕГРАЦИЯЛАНГАН ОКУУ ПРОГРАММАСЫНДА ИЗИЛДӨӨ ЖАНА
ПРАКТИКА**

**ИЗУЧЕНИЕ И ПРАКТИКА МОДЕЛЕЙ ОБУЧЕНИЯ НА ОСНОВЕ ИСКУССТВЕННОГО
ИНТЕЛЛЕКТА В РАМКАХ СПЕЦИАЛИЗИРОВАННОЙ ИННОВАЦИОННОЙ
ИНТЕГРИРОВАННОЙ УЧЕБНОЙ ПРОГРАММЫ**

**ARTIFICIAL INTELLIGENCE-ENABLED TEACHING MODEL EXPLORATION
AND PRACTICE IN SPECIALIZED INNOVATION INTEGRATED CURRICULUM**

Кыскача мүнөздөмө: Жасалма интеллект (Ии) технологиясынын тез өнүгүшү жогорку билим берүү реформасына жаңы жолдорду ачты. Бул изилдөө адистештирилген инновациялык интеграцияланган окуу программасында (СИИ) Ии тарабынан иштетилген Троица онлайн окутуу системасын түзүүгө, курстун мазмунун тыгыз интеграциялоого жана иинин кесиптик билим берүү менен инновациялык-ишкердик билим берүүнүн ортосундагы синергияны тереңдетүүдө ролун изилдөө үчүн ар түрдүү баалоо механизмин кабыл алууга багытталган. Жыйынтыктар көрсөткөндөй, Ии тарабынан өркүндөтүлгөн СИИК окутуусу окуучулардын өз алдынча багытталган окуу жөндөмүн, инновациялык ой жүгүртүүсүн жана практикалык колдонмо көндүмдөрүн натыйжалуу жакшыртат, жогорку билим берүүнүн санариптик трансформациясы үчүн баалуу түшүнүктөрдү берет.

Аннотация: Стремительное развитие технологий искусственного интеллекта (ИИ) открыло новые пути для реформирования высшего образования. Это исследование посвящено моделям обучения с использованием искусственного интеллекта в рамках специализированной инновационной интегрированной учебной программы (СИИУП), созданию системы онлайн-обучения trinity с использованием искусственного интеллекта, тесной интеграции содержания курса и внедрению разнообразного механизма оценки для изучения роли искусственного интеллекта в углублении синергии между профессиональным образованием и образованием в области инноваций и предпринимательства. Полученные результаты демонстрируют, что обучение СИИ с использованием искусственного интеллекта эффективно развивает у студентов способности к самостоятельному обучению, инновационное мышление и навыки практического применения, предоставляя ценную информацию для цифровой трансформации высшего образования.

Abstract: The rapid advancement of artificial intelligence (AI) technology has provided new pathways for higher education reform. This study focuses on AI-enabled teaching models in the Specialized Innovation Integrated Curriculum (SIIC), constructing a trinity online teaching system empowered by AI, closely integrating course content, and adopting a diversified evaluation mechanism to explore AI's role in deepening the synergy between professional education and innovation-entrepreneurship education. The findings demonstrate that AI-enhanced SIIC teaching effectively improves students' self-directed learning abilities, innovative thinking, and practical application skills, offering valuable insights for the digital transformation of higher education.

Негизги сөздөр: жасалма интеллект (Ии), адистештирилген инновациялык интеграцияланган окуу программасы (ИИИ), окутуу модели, экосистема, студенттер, көндүмдөр.

Ключевые слова: искусственный интеллект (ИИ), Специализированная инновационная интегрированная учебная программа (СИИ), модель обучения, экосистема, студенты, навыки.

Keywords: artificial intelligence (AI), Specialized Innovation Integrated Curriculum (SIIC), teaching model, ecosystem, students, skills.

Amidst the deepening integration of information technology and higher education, the emergence of artificial intelligence (AI) has provided a powerful tool for teaching reform. As a pivotal technology driving scientific advancement, AI has profoundly impacted the education sector. AI-powered course assistants, AI-augmented teaching systems, and other innovations have effectively addressed modern pedagogical demands through novel methodologies, laying the groundwork for AI-enabled implementation of the *Specialized Innovation Integrated Curriculum (SIIC)* teaching model. This study constructs an *AI-empowered SIIC teaching framework*, integrating AI technologies throughout the entire process of curriculum design, instructional delivery, and evaluation feedback, thereby achieving an organic unity of professional knowledge acquisition and innovation-entrepreneurship competency development.

Zhylchieva D.S, Egamberdieva A.A. in their research note that in conditions of rapid development of technology and the increase in the volume of information, students are faced with the need to effectively analyze data and critically evaluate information. Artificial intelligence (AI) offers new opportunities to improve the quality of education, including developing critical thinking and analytical skills in students. [1]

The article by Nurueva Zh.B., Muktarbekov R.Zh. considers examines the concept of "artificial intelligence" and its main features in the field of education. The advantages and possibilities of using AI for teachers are discussed. An example of some standard technologies for artificial intelligence, used by modern foreign and domestic creators of education. Description problems and perspectives of their use in the sphere of modern education. [2]

I. Foundation for Implementation.

We rely on provincial-level online first-class courses to carry out teaching activities. As the earliest provincial-level quality online open courses and online first-class courses of Sociology in the province, the courses were launched on the MOOC platform and were widely reported by the media. Those who rely on courses to teach are rated as excellent courses of provincial undergraduate education online teaching. In order to better exert the influence of AI enabled, specialized and creative integration courses to the greatest extent, radiate and drive more students to benefit, we pay attention to the comprehensive

training of students' innovative thinking, application ability and willpower quality in many aspects of teaching and talent training, strengthen AI empowerment, highlight the requirements of "SIIC" in training objectives, integrate the teaching content into "SIIC" thinking, run through the concept of "SIIC" in team training, highlight the quality of "SIIC" in talent evaluation, and emphasize the ability of "SIIC" in practice platform, and integrate the driving role of online specialized and creative integration courses into every link of teaching, scientific research and talent training.

II. The Constructive Value of AI-Enabled SIIC Teaching Model.

1. Technology-Empowered Precision Education: Reshaping the New Paradigm of Professional-Innovation Integration. The deep integration of AI technology effectively addresses the core challenges in traditional specialized innovation education, such as "high disciplinary barriers" and "limited innovation pathways." By establishing an intelligent teaching cloud platform and creating an SIIC case database, knowledge graph technology enables smart correlations between professional courses and entrepreneurial elements. [3] During learning, the system automatically recommends innovation and entrepreneurship cases, forming a multidimensional knowledge network. This teaching model not only breaks the spatiotemporal constraints of traditional classrooms but also generates personalized learning paths for each student through adaptive learning algorithms, truly achieving "customized" innovation talent cultivation.

2. Data-Driven Teaching Innovation: Building an Ecosystem for Competency Development. Leveraging educational big data analytics and intelligent decision-making systems, a closed-loop teaching framework integrating "learning, practicing, creating, and evaluating" is constructed. At the instructional design level, AI analyzes students' research reports to identify key nodes in innovative thinking development, enabling dynamic adjustments to teaching plans. During implementation, an intelligent teaching assistant system employs affective computing to monitor classroom engagement in real time. When a decline in students' innovative thinking is detected, interactive sessions are automatically triggered. This data-driven teaching transformation frees educators from repetitive tasks, allowing them to focus on guiding innovative thinking, ultimately forming a new

educational ecosystem where "AI manages standards, and teachers foster growth."

3. Intelligent Platform for the Future: Accelerating Talent Development. AI-enhanced SIIC teaching transforms real-world societal challenges into instructional resources, significantly improving the application of course knowledge into practical competencies. Meanwhile, AI optimizes learning efficiency by delivering precision teaching tailored to individual students, effectively enhancing outcomes for learners at different levels. This model substantially improves the allocation efficiency of innovation education resources in universities, providing a practical blueprint for resolving the structural mismatch between talent cultivation and societal needs.

III. Development Approach of the Teaching Model.

AI-Enhanced Teaching System for Curriculum Development. The course adopts the "Trinity" online teaching system enabled by artificial intelligence. It is designed from three dimensions: memory knowledge, bottom-level thinking, and application ability, forming three subsystems: online course, online discussion, application and practice. Each subsystem has its corresponding teaching task. The online course link includes course videos, courseware teaching plans, online tests, etc.; the online discussion link includes interactive question and answer, expert class, reverse class, etc.; the application and practice link includes online social research and topic discussion, etc.; all the above links are participated by AI teaching assistants. Through such a system, students can effectively participate in teaching and improve their self-study ability.[4] Specifically, students watch online open course video teaching content before class, some of which use virtual scene to assist teaching, download and read all kinds of teaching materials prepared by teachers online, and use AI course assistant to assist in correcting course assignments and establishing course test paper library. At the same time, the online teaching concept of "problem-based" is adopted. The teacher organizes students to discuss in groups around the teaching content, and creates an artificial intelligence digital human to help answer doubts, realizing the whole 24-hour course teaching online. At the same time, carry out online "project" teaching, guide students to form a project team on a certain social and life problem, try to solve the social problems they face, and AI helps students understand various social phenomena in life. In the online link, experts and

scholars are also introduced into the classroom at the right time to understand the society from different perspectives and interact with students.

Innovate teaching content and enhance learning interest. The course content closely meets the needs of the society, and is composed of six major modules: sociological imagination, sociology and urban and rural areas, sociology and emotional world, sociology and the Internet era, sociology and campus life, sociology and the new era. The logical level is clear and fits the social reality. Through the study of this course, we can understand the colorful world from a group perspective, recognize the laws of social development, and explore the mysteries of socialization, social stratification, social interaction, social roles, and social development, so as to broaden the vision of knowledge, cultivate objective and rational thinking, and improve the comprehensive ability to understand social phenomena and deal with social problems. Course cases and related teaching resources are well combined with the latest social hot spots, academic frontier and SIIC requirements, and the use of modern information technology and classroom teaching are deeply integrated to innovate the educational form and reshape the teaching process. Through artificial intelligence, the course helps teachers internalize the requirements and standards of high-level college students' innovation and entrepreneurship competition into the teaching content. At the same time, artificial intelligence assists students' choice. In this way, the teaching of professional course knowledge is well integrated with the improvement of College Students' innovation and entrepreneurship literacy, and becomes an excellent carrier for cultivating applied talents. By guiding students to participate in various types of innovation and entrepreneurship training programs at all levels and high-level competitions, the students' professional ability and innovation and entrepreneurship ability have been improved synchronously by using competition as a substitute for practice, training to promote learning, and learning to promote behavior.

3. Do well in course evaluation and test teaching effectiveness. According to the characteristics of the course, the course adopts the online Diversified Assessment and evaluation mode, through the enabling process evaluation and summative evaluation of artificial intelligence, and sets the evaluation coefficient of each module based on artificial intelligence. The teaching evaluation of the course is composed of three modules, namely "basic knowledge"+"SIIC

ability"+"comprehensive literacy". All evaluations are widely participated by artificial intelligence, such as AI assisting in correcting homework and evaluation. Specifically, the "basic knowledge" part is comprehensively checked by students' course video learning, online test scores and homework completion, and the "basic knowledge" part is used to check students' mastery of the basic contents of the course; SIIC ability is assessed by Social Research Report, project entrepreneurship practice, participation in innovation and entrepreneurship competition, and comprehensive evaluation of case group discussion results.[5] The "SIIC ability" part is used to test students' ability to apply professional knowledge to participate in innovation and entrepreneurship; The "comprehensive quality" part is a comprehensive evaluation of whether to actively participate in online discussions, whether to actively answer the questions raised by teachers or students, whether to actively raise questions, etc. the comprehensive quality score is conducive to stimulating the enthusiasm of students to actively participate in learning and enhancing students' self-confidence. The comprehensive literacy evaluation module more reflects the process evaluation, and the basic knowledge and application ability evaluation module integrates the process evaluation and summative evaluation.

4. Optimize teaching methods and improve teaching efficiency. In the whole course teaching method setting process, AI will assist teachers to set up different teaching methods based on the course content. Through the analysis of the course content and students' situation, AI assisted teachers to establish the boppps teaching mode and apply it to the whole teaching process of the course, using online "theory practice" integrated teaching, "project-based" teaching, "problem-based" teaching and other methods to innovate classroom teaching. For example, select the appropriate chapter, integrate "teaching, learning and doing" into one, and guide students to understand the grassroots social governance in their area during the epidemic with the method of "video guidance+students' online research". The course adopts flipped classroom to promote the online teaching reform of the course. In order to better realize online flipping, the input link of memory knowledge is assisted by AI course assistant through video, PPT. The form of the test is pushed to the students. After learning, you can bring questions to the Tencent live classroom. Through the live link, you can focus on the in-depth discussion on the understanding of knowledge connotation and the application of

theory, guide students to talk about some chapters, help answer questions and solve doubts with AI, promote practice at different levels, analyze key and difficult points, form expert online classes, and share cutting-edge progress.

5. Improve organization and implementation, "AI+MOOC" collaborative promotion. The course adopts the way of flipped classroom to promote the online teaching reform of the course and continuously optimize the course. In order to better realize online flipping, the course adopts the "AI+MOOC" method to solve the possible problems in teaching activities as much as possible. In this form, the course uses the MOOC platform to input such memory knowledge as concepts and theories via video, PPT. The form of test is pushed to students through mobile phones. At present, there are learning videos, after-class discussions, unit test questions, classroom cases, etc. After learning, when you encounter something you don't understand, you can bring the problem to the classroom with you. At the same time, you can implement the whole process with the help of artificial intelligence, which is also the highlight of improving students' learning ability. Through each link, the course focuses on the in-depth discussion of the understanding of knowledge connotation and the application of theory, guides students to talk about some chapters, organizes questions and answers between students or between teachers and students, promotes exercises at different levels, analyzes and discusses key and difficult points, interacts with experts outside the school, and shares cutting-edge progress. This series of teaching activities have consolidated the students' understanding of the course knowledge and effectively improved their application ability.

IV. Conclusion.

The deep integration of artificial intelligence and education and teaching is the inevitable trend of higher education reform. The enabling role of artificial intelligence has significantly improved the students' comprehensive quality and practical ability. Contemporary college students need to comprehensively cultivate their innovative thinking, application ability and will quality in order to be pioneering, innovative and courageous pioneers of the times. In recent years, through this teaching mode, on the basis of constantly improving students' professional level and learning confidence, we have effectively promoted the growth of students and improved their comprehensive ability to use professional knowledge for innovation and entrepreneurship. It

provides beneficial experience for the digital transformation of higher education and the education reform of SIIC.

References

1. Жылчиева Д.С., Эгамбердиева А.А. Развитие критического мышления и аналитических навыков студентов с использованием искусственного интеллекта. Вестник КНУ им. Ж. Баласагына, №3 (119), 2024. С. 451-455.
2. Нуруева Ж.Б., Муктарбекова Р.Ж. Искусственный интеллект в образовании: новые возможности для педагогов. Вестник КНУ им. Ж. Баласагына, №3 (119), 2024. С. 455-461.
3. Wang, L., et al. Teaching Reform of Computer Specialty Courses Under the Concept of Specialty-Innovation Integration [J]. Computer Education, 2024(8).
4. Zhang, Y. Construction and Practice of "Specialty-Innovation Integration" Course in "Internet of Things Technology" Based on OBE Concept [J]. Electronic Components and Information Technology, 2024(6).
5. Lai, Y. Practical Exploration of "Specialty-Innovation Integration" in Business English Courses Under the Background of Artificial Intelligence Application [J]. Innovation and Entrepreneurship Theory Research and Practice, 2023(11).

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