

BLOKCHEYN TEXNOLOGIYASI PEDAGOGIK TAHLILI.

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Annotatsiya: Mazkur maqolada blokcheyn texnologiyasining ta'lim tizimidagi o'рни va uning pedagogik jihatdan tahlili yoritilgan. Tadqiqotda blokcheyn texnologiyasining mohiyati, asosiy xususiyatlari hamda ta'lim jarayonida qo'llash imkoniyatlari tahlil qilinadi. Shuningdek, mazkur texnologiyaning kompetensiyaviy yondashuvni qo'llab-quvvatlashdagi roli, mustaqil ta'limni rivojlantirishdagi imkoniyatlari hamda ta'lim sifatini oshirishdagi samaradorligi asoslab berilgan. Tadqiqot natijalari blokcheyn texnologiyasini ta'lim tizimiga joriy etishda pedagogik, texnik va tashkiliy omillarni kompleks tarzda hisobga olish zarurligini ko'rsatadi.

Kalit so'zlar: blokcheyn texnologiyasi, raqamli ta'lim, pedagogik tahlil, innovatsion ta'lim, akademik halollik, kompetensiyaviy yondashuv.

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Аннотация: В данной статье рассматривается роль технологии блокчейн в системе образования и проводится ее педагогический анализ. Исследование анализирует сущность, основные особенности и возможности использования технологии блокчейн в образовательном процессе. Также обосновывается роль этой технологии в поддержке компетентностного подхода, ее потенциал для развития самостоятельного обучения и ее эффективность в повышении качества образования. Результаты исследования указывают на необходимость всестороннего учета педагогических, технических и организационных факторов при внедрении технологии блокчейн в систему образования.

Ключевые слова: технология блокчейн, цифровое образование, педагогический анализ, инновационное образование, академическая честность, компетентностный подход.

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Abstract: This article discusses the role of blockchain technology in the education system and its pedagogical analysis. The study analyzes the essence, main features, and possibilities of using blockchain technology in the educational process. It also substantiates the role of this technology in supporting the competency-based approach, its potential for developing independent learning, and its effectiveness in improving the quality of education. The results of the study indicate the need to comprehensively consider pedagogical, technical, and organizational factors when introducing blockchain technology into the education system.

Keywords: blockchain technology, digital education, pedagogical analysis, innovative education, academic integrity, competency-based approach.

Raqamli transformatsiya jarayonlari XXI asr ta'lim tizimida tub o'zgarishlarni yuzaga keltirmoqda. Axborot-kommunikatsiya texnologiyalarining tezkor rivojlanishi ta'lim mazmuni, shakli va metodlariga yangi yondashuvlarni talab etmoqda. Shunday innovatsion texnologiyalardan biri — **blokcheyn (blockchain) texnologiyasi** bo'lib, u dastlab moliyaviy sohada qo'llanilgan bo'lsa-da, bugungi kunda ta'lim tizimida ham muhim pedagogik ahamiyat kasb etmoqda. Blokcheyn texnologiyasi ma'lumotlarning o'zgarishligi, shaffofligi va xavfsizligini ta'minlagan holda ta'lim jarayonini boshqarish, baholash va monitoring qilishda yangi imkoniyatlar yaratadi.

Ushbu maqolada blokcheyn texnologiyasining mohiyati, ta'lim tizimidagi qo'llanilishi va uning pedagogik jihatdan tahlili yoritiladi.

Blokcheyn texnologiyasining mohiyati

Blokcheyn — bu markazlashmagan, tarqatilgan ma'lumotlar bazasi bo'lib, unda axborotlar bloklar ko'rinishida saqlanadi va har bir blok oldingi blok bilan kriptografik bog'langan bo'ladi. Ushbu tizim quyidagi asosiy xususiyatlarga ega:

- **Markazlashmaganlik** — ma'lumotlar yagona serverda emas, balki tarmoq ishtirokchilari o'rtasida taqsimlanadi;
- **O'zgarimaslik** — kiritilgan ma'lumotlarni keyinchalik o'zgartirish deyarli imkonsiz;
- **Shaffoflik** — barcha ishtirokchilar ma'lumotlar tarixini ko'rish imkoniyatiga ega;
- **Xavfsizlik** — kriptografik himoya orqali ma'lumotlar ishonchliligi ta'minlanadi.

Mazkur xususiyatlar blokcheyn texnologiyasini ta'lim sohasida ishonchli axborot platformasi sifatida qo'llash imkonini beradi.

Blokcheyn texnologiyasining ta'lim tizimidagi o'rni

Ta'lim jarayonida blokcheyn texnologiyasi quyidagi yo'nalishlarda qo'llanilishi mumkin:

- talabalarning **o'quv yutuqlari va reytinglarini saqlash**;
- **diplom va sertifikatlarining haqiqiylikini tasdiqlash**;
- masofaviy ta'lim tizimlarida **baholashning shaffofligini** ta'minlash;
- akademik halollikni mustahkamlash;
- individual ta'lim trayektoriyasini monitoring qilish.

Bu imkoniyatlar ta'lim jarayonini raqamli boshqarish samaradorligini oshiradi va subyektivlikni kamaytiradi.

Blokcheyn texnologiyasining pedagogik tahlili

Pedagogik nuqtai nazardan blokcheyn texnologiyasi quyidagi jihatlar asosida tahlil qilinadi:

1. Ta'lim jarayonining shaffofligi

Blokcheyn asosidagi tizimlar orqali baholash natijalari, topshiriqlar va o'quv faoliyati ochiq va tekshiriladigan bo'ladi. Bu esa o'quvchilarda adolat va ishonch hissini kuchaytiradi.

2. Ta'lim subyektlarining mas'uliyati

O'quvchi, o'qituvchi va ta'lim muassasasi faoliyati blokcheyn tizimida qayd etilishi sababli har bir ishtirokchi o'z faoliyatiga mas'uliyat bilan yondashadi.

3. Mustaqil ta'limni rivojlantirish

Blokcheyn texnologiyasi individual o'quv natijalarini uzluksiz qayd etib borish imkonini beradi. Bu esa talabaning o'z-o'zini nazorat qilish va mustaqil ta'lim ko'nikmalarini rivojlantiradi.

4. Kompetensiyaviy yondashuvni qo'llab-quvvatlash

Ta'lim natijalari faqat baho bilan emas, balki kompetensiyalar asosida qayd etilishi mumkin. Bu zamonaviy pedagogik yondashuvlarga to'liq mos keladi.

Blokcheyn texnologiyasining afzalliklari va cheklovlari

Afzalliklari:

- ma'lumotlarning ishonchliligi va saqlanishi;
- akademik hujjatlarni soxtalashtirishning oldini olish;
- ta'lim jarayonida korrupsiyaviy holatlarni kamaytirish;
- masofaviy ta'lim samaradorligini oshirish.

Cheklovlari:

- texnik infratuzilmaning yetarli darajada rivojlanmaganligi;
- mutaxassis kadrlar yetishmasligi;
- dastlabki joriy etish xarajatlarining yuqoriligi;
- pedagoglarning raqamli savodxonligi bilan bog'liq muammolar.

Blokcheyn texnologiyasi ta'lim tizimini modernizatsiya qilishda muhim innovatsion vosita hisoblanadi. Uning pedagogik tahlili shuni ko'rsatadiki, ushbu texnologiya ta'lim jarayonining shaffofligi, ishonchliligi va samaradorligini oshiradi. Shu bilan birga, blokcheyn texnologiyasini ta'lim tizimiga joriy etishda pedagogik, texnik va tashkiliy omillarni kompleks tarzda hisobga olish zarur.

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