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Tashkent International University of Education
Turin Polytechnic University in Tashkent

PROCEEDINGS

of the MMIT'25 International Conference

TA'LIMNING ZAMONAVIY USULLARI VA
INNOVATSION TEXNOLOGIYALAR

MODERN METHODS AND INNOVATION
TECHNOLOGIES IN EDUCATION

СОВРЕМЕННЫЕ МЕТОДЫ И
ИННОВАЦИОННЫЕ ТЕХНОЛОГИИ
В ОБРАЗОВАНИИ

29 May 2025, Tashkent, Uzbekistan

MAQOLALAR TO'PLAMI
СБОРНИК СТАТЕЙ



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Modern methods and innovation technologies in education

**Современные методы и инновационные технологии в
образовании**

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ZAMONAVIY TA'LIM, PEDAGOGIKA VA STEAM: INTEGRATIV YONDASHUVLARNING ILMIY-ASOSIY TAHLILI

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Annotatsiya. Ushbu maqolada Bugungi globallashuv va raqamli transformatsiya davrida ta'lim tizimi oldida turgan asosiy vazifa – zamonaviy talab va ehtiyojlarga javob bera oladigan shaxsni tarbiyalashdir. Shu munosabat bilan an'anaviy pedagogik yondashuvlar o'zgarib, ularning o'rnini interaktiv, innovatsion va tizimli metodikalar egallamoqda. Zamonaviy ta'lim tizimida innovatsion yondashuvlar, xususan, STEAM modeli asosidagi integrativ o'qitish metodlari ilmiy-pedagogik nuqtai nazardan tahlil qilinadi. Pedagogikada shakllanayotgan yangi paradigma – shaxsga yo'naltirilgan, faol va amaliy yondashuvlarning mohiyati ochib beriladi. STEAM ta'limining nazariy asoslari, uning fanlararo integratsiyadagi o'rnini va o'quvchilarda kreativ fikrlash, muammoli vaziyatlarni hal qilish ko'nikmalarini shakllantirishdagi roli yoritilgan.

Kalit so'zlar: zamonaviy ta'lim, pedagogika, STEAM, integratsiya, kreativ fikrlash, muammoli o'qitish.

SCIENTIFIC AND BASIC ANALYSIS OF MODERN EDUCATION, PEDAGOGY AND STEAM: INTEGRATIVE APPROACHES

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Abstract. In this article, the main task facing the education system in today's era of globalization and digital transformation is to educate a person who can meet modern requirements and needs. In this regard, traditional pedagogical approaches are changing, and interactive, innovative, and systematic methods are replacing them. Innovative approaches in the modern education system, in particular, integrative teaching methods based on the STEAM model, are analyzed from a scientific and pedagogical point of view. The essence of the new paradigm being formed in pedagogy - personality-oriented, active, and practical approaches - is revealed. The theoretical foundations of STEAM education, its place in interdisciplinary integration, and its role in the formation of creative thinking and problem-solving skills in students are highlighted.

Keywords: modern education, pedagogy, STEAM, integration, creative thinking, problem-based learning.

Kirish

XXI asrda globallashuv va raqamli transformatsiya jarayonlari ta'lim tizimidan yangicha yondashuvlarni talab qilmoqda. Endilikda ta'lim nafaqat bilim berish, balki shaxsiy salohiyatni ochish, ijodiy fikrlashni rivojlantirish va amaliy ko'nikmalarni shakllantirish vositasiga aylanmoqda. Shu bilan birga, zamonaviy pedagogik yondashuvlar an'anaviy o'qitish modelini qayta ko'rib chiqishni talab etmoqda.

Ayniqsa, so'nggi yillarda STEAM (Science, Technology, Engineering, Arts, Mathematics) yondashuvi nafaqat rivojlangan davlatlarda, balki O'zbekistonda ham bosqichma-bosqich joriy qilinmoqda. Mazkur maqolada ushbu yondashuvning ilmiy-metodik asoslari va uning amaliy natijalari o'rganiladi.

Natijalar va muhokama

Zamonaviy pedagogik paradigma o'quvchi shaxsiga yo'naltirilgan ta'lim, interaktiv metodlar, raqamli texnologiyalar integratsiyasi, hayotga yaqinlashtirilgan topshiriqlar asosida shakllanmoqda. Bu jarayonda quyidagi tendensiyalar alohida ajralib turadi:

1. Konstruktivistik yondashuv - bilim o'qituvchi tomonidan berilmaydi, balki o'quvchining faoliyatida shakllanadi (Piaje, Vygotsky).

2. Kolaborativ va loyiha asosida o'qitish, ya'ni guruhlarda ishlash orqali muammoli vaziyatlarni hal qilish [1].

3. Kompetensiyaviy yondashuv, ya'ni bilimdan tashqari ko'nikma va qadriyatlarni shakllantirish.

Bu jarayonlar ta'lim tizimida STEAM modelining samarali tatbiq etilishiga zamin yaratadi.

Zamonaviy ta'lim quyidagi asosiy jihatlar bilan ajralib turadi:

Shaxsga yo'naltirilgan yondashuv – har bir o'quvchining individual qobiliyatlarini rivojlantirish [2].

Texnologik integratsiya – raqamli texnologiyalar, sun'iy intellekt va virtual haqiqat elementlaridan foydalanish.

Hayotga yaqinlik – nazariyani amaliyot bilan bog'lab, o'quvchiga real hayotdagi muammolarni yechish ko'nikmalarini shakllantirish.

Kritik fikrlash va muammolarni hal qilish – mustaqil qaror qabul qilish, izlanish olib borish va tanqidiy tahlil qilish qobiliyatlarini rivojlantirish.

STEAM — fan, texnologiya, muhandislik, san'at va matematikani yagona tizimda uyg'unlashtirgan ta'lim modeli bo'lib, quyidagi afzalliklarga ega:

1. Fanlararo integratsiya – o'quvchilar bilimlarni alohida emas, balki real hayotdagi muammolar kontekstida birgalikda o'zlashtiradilar.

2. Kreativ fikrlash va dizayn fikrlash – masalaning turli yo'llar bilan yechimini topish, estetik va texnik yondashuvlarni birlashtirish.

3. Amaliyotga yo'naltirilganlik – robototexnika, eksperimentlar, loyiha ishlarini amalga oshirish orqali o'rganish [3].

Jahon tajribasida (AQSh, Janubiy Koreya, Finlyandiya) STEAM o'quvchilarda tanqidiy fikrlash, jamoaviy ishlash, texnologik savodxonlik va ijodkorlikni rivojlantirishda muhim vosita bo'lib xizmat qilmoqda.

O'zbekiston Respublikasi Prezidenti va Hukumatning STEAM ta'limini joriy etishga oid turli qaror va loyihalar asosida bir qator maktablarda eksperimental tarzda STEAM laboratoriyalari tashkil etildi. Bu borada quyidagi muammolar mavjud:

O'qituvchilarning yetarli tayyorgarligi yo'qligi;

Darsliklar va metodik ta'minotning yetarli emasligi;

Texnik infratuzilmaning ayrim hududlarda zaifligi.

Shunga qaramay, Toshkent shahridagi ba'zi maktablarda robototexnika, 3D-modellashtirish, Arduino asosida loyiha ishlari joriy etilib, ijobiy natijalar kuzatilmoqda. Bu tajribalar umumta'lim muassasalariga kengaytirilishi lozim.

STEAM yondashuvi ta'limda fanlararo integratsiyani ta'minlaydi [4]. Bu model orqali o'quvchilar:

Fan va texnologiyalarni san'at va kreativlik bilan uyg'unlashtirib, ijodiy fikrlashga o'rganadilar;

Murakkab muammolarga turli nuqtai nazardan yondashishni o'rganadilar;

Innovatsion loyihalarda qatnashib, tadbirkorlik ruhini rivojlantiradilar.

Masalan, bir STEAM loyihasida o'quvchilar robototexnika vositalarini yaratish (engineering), ularni dasturlash (technology), dizaynini ishlab chiqish (arts), ularning harakatini fizik qonunlar orqali tushunish (science) va xarajatlar hisobi orqali iqtisodiy jihatdan tahlil qilishni (mathematics) amalga oshiradilar.

Xulosa

Zamonaviy ta'lim va pedagogik yondashuvlarning rivoji, ayniqsa STEAM modeli orqali o'quvchilarning har tomonlama kompetensiyalarini shakllantirishda katta imkoniyatlar yaratmoqda. Bu esa nafaqat bilimli, balki muammolarni mustaqil hal qila oladigan, kreativ va ijtimoiy mas'uliyatli avlodni tarbiyalash uchun zamin yaratadi. O'qituvchilar uchun esa bu – yangi rol va yangi metodlarni egallash zaruratini bildiradi. Zamonaviy ta'limda pedagogik yondashuvlar va STEAM modelining uyg'unligi – kompetensiyali, kreativ, ijtimoiy faol shaxsni shakllantirishda muhim omildir. STEAM nafaqat fanlararo integratsiyani, balki real hayotga mos keluvchi ta'lim modelini taklif etadi. O'zbekistonda bu yondashuvni keng joriy etish uchun tizimli yondashuv, o'qituvchilarni qayta tayyorlash, metodik ta'minotni kuchaytirish zarur.

Adabiyotlar ro'yxati

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An abstract graphic featuring a complex network of interconnected nodes and lines, resembling a molecular structure or a data network, set against a dark blue background. The nodes are represented by circles of varying sizes, and the lines are thin, light blue, creating a web-like pattern that fills the upper two-thirds of the page.

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