



ISSN: 3060-4613



MAKTABGACHA
VA MAKTAB
TA'LIMI VAZIRLIGI



No9
2025

- 13.00.00 Pedagogika fanlari
- 13.00.01 Pedagogika nazariyasi. Pedagogik ta'limotlar tarixi
- 13.00.02 Ta'lim va tarbiya nazariyasi va metodikasi (sohalar bo'yicha)
- 13.00.03 Maxsus pedagogika
- 13.00.04 Jismoniy tarbiya va sport mashg'ulotlari nazariyasi va metodikasi
- 13.00.05 Kasb-hunar ta'limi nazariyasi va metodikasi
- 13.00.06 Elektron ta'lim nazariyasi va metodikasi (ta'lim sohaları va bosqichlari bo'yicha)
- 13.00.07 Ta'limda menejment
- 13.00.08 Maktabgacha ta'lim va tarbiya nazariyasi va metodikasi
- 13.00.09 Ijtimoiy pedagogika
- 07.00.00 Tarix fanlari
- 19.00.00 Psixologiya fanlari
- 01.00.00 Fizika-matematika fanlari
- 02.00.00 Kimyo fanlari
- 03.00.00 Biologiya fanlari
- 09.00.00 Falsafa fanlari
- 10.00.00 Filologiya fanlari
- 11.00.00 Geografiya fanlari

M

AKTABGACHA VA AKTAB TA'LIMI

Pedagogika, psixologiya fanlariga ixtisoslashgan ilmiy jurnal



MAKTABGACHA VA MAKTAB TA'LIMI



Elektron nashr. 258 sahifa,
2-sentyabr, 2025-yil.

BOSH MUHARRIR:

Karimova E'zoza Gapijranovna – O'zbekiston Respublikasi Maktabgacha va maktab ta'limi vaziri

BOSH MUHARRIR O'RINBOSARI:

Ibragimova Gulsanam Ne'matovna – Pedagogika fanlari doktori, professor

TAHRIRIYAT KENGASHI A'ZOLARI

Ibragimov X.I. – pedagogika fanlari doktori, akademik
Shoumarov G'.B. – psixologiya fanlari doktori, akademik
Qirg'izboyev A.K. – Tarix fanlari doktori, professor
Jamoldinova O.R. – pedagogika fanlari doktori, professor
Sharipov Sh.S. – pedagogika fanlari doktori, professor
Shermuhhammadov B.Sh. – pedagogika fanlari doktori, professor
Ma'murov B.B. – pedagogika fanlari doktori, professor
Madraximova F.R. – pedagogika fanlari doktori, professor
Kalonov M.B. – iqtisodiyot fanlari doktori, professor
Nabiyev D.X. – iqtisodiyot fanlari doktori, professor
Qo'ldoshev Q. M. – iqtisodiyot fanlari doktori, professor
Ikramxanova F.I. – filologiya fanlari doktori, professor
Ismagilova F.S. – psixologiya fanlari doktori, professor (Rossiya)
Stoyuxina N.Yu. – psixologiya fanlari nomzodi, dotsent (Rossiya)
Magauova A.S. – pedagogika fanlari doktori, professor (Qozog'iston)
Rejep O'zyurek – psixologiya fanlari doktori, professor (Turkiya)
Wookyu Cha – Koreya milliy ta'lim universiteti rektori (Koreya)
Polonnikov A.A. – psixologiya fanlari nomzodi, dotsent (Belarus)
Mizayeva F. O. – Pedagogika fanlari doktori, dotsent
Baybayeva M.X. – pedagogika fanlari doktori, professor
Muxsiyeva A.T. – pedagogika fanlari doktori, professor
Aliyev B. – falsafa fanlari doktori, professor
G'afurov D. O. – falsafa fanlari doktori (Phd)
Shomurodov R.T. – iqtisodiyot fanlari nomzodi (PhD), dotsent
Mirzayeva F.O. – pedagogika fanlari bo'yicha falsafa doktori (PhD), dotsent
Jalilova S.X. – psixologiya fanlari nomzodi (PhD), dotsent
Bafayev M.M. – psixologiya fanlari bo'yicha falsafa doktori (PhD), dotsent
Usmonova D.I. – Samarqand iqtisodiyot va servis institute dotsenti
Saifnazarov I. – falsafa fanlari doktori, professor
Nematov Sh.E. – pedagogika fanlari nomzodi (PhD)
Tillashayxova X.A. – psixologiya fanlari nomzodi (PhD), dotsent
Yuldasheva F.I. – pedagogika fanlari bo'yicha falsafa doktori (PhD), dotsent
Doniyorov S. M. – "Yangi O'zbekiston" va "Pravda Vostoka" gazetalarini tahririyati DM bosh muharriri, O'zbekiston Respublikasida xizmat ko'rsatgan jurnalist, filologiya fanlari nomzodi (PhD)
Yuldasheva D.B. – filologiya fanlari bo'yicha falsafa (PhD) doktori, dotsent
Tangriyev A. T. – Toshkent davlat iqtisodiyot universiteti kafedra professori
Ashurov R. R. – psixologiya fanlari bo'yicha falsafa doktori (PhD)
Panjiyev M. A. – Qashqadaryo viloyati Maktabgacha va maktab ta'limi boshqarmasi boshlig'ining birinchi o'rinbosari
Xudayberganov N. A. – Xorazm Ma'mun akademiyasi Tabiiy fanlar bo'limining katta ilmiy xodimi, biologiya fanlari bo'yicha falsafa doktori (PhD)

Muassis: "Tadbirkor va ishbilarmon" MChJ

Hamkorlarimiz: O'zbekiston Respublikasi Maktabgacha va maktab ta'limi vazirligi, O'zbekiston milliy pedagogika universiteti

EDITOR-IN-CHIEF:

Karimova E'zoza Gapirzhanovna – Minister of Preschool and School Education of the Republic of Uzbekistan

DEPUTY EDITOR-IN-CHIEF:

Ibragimova Gulsanam Ne'matovna – Doctor of Pedagogical Sciences, Professor

EDITORIAL BOARD MEMBERS:

Ibragimov X.I. – Doctor of Pedagogical Sciences, Academician

Shoumarov G. B. – Doctor of Psychological Sciences, Academician

Qirg'izboyev A. K. – Doctor of Historical Sciences, Professor

Jamoldinova O.R. – Doctor of Pedagogical Sciences, Professor

Sharipov Sh.S. – Doctor of Pedagogical Sciences, Professor

Shermuhhammadov B.Sh. – Doctor of Pedagogical Sciences, Professor

Ma'murov B.B. – Doctor of Pedagogical Sciences, Professor

Madraximova F.R. – Doctor of Pedagogical Sciences, Professor

Kalonov M.B. – Doctor of Economic Sciences, Professor

Nabiyev D.X. – Doctor of Economic Sciences, Professor

Koldoshev K. M. – Doctor of Economic Sciences, Professor

Ikramxanova F.I. – Doctor of Philological Sciences, Professor

Ismagilova F.S. – Doctor of Psychological Sciences, Professor (Russia)

Stoyuxina N.Yu. – Candidate of Psychological Sciences (PhD), Associate Professor (Russia)

Magauova A.S. – Doctor of Pedagogical Sciences, Professor (Kazakhstan)

Rejep O'zyurek – Doctor of Psychological Sciences, Professor (Turkey)

Wookyu Cha – President of the National University of Education, Korea (South Korea)

Polonnikov A.A. – Candidate of Psychological Sciences (PhD), Associate Professor (Belarus)

Mizayeva F. O. – Doctor of Pedagogical Sciences, Professor

Baybayeva M.X. – Doctor of Pedagogical Sciences, Professor

Muxsiyeva A.T. – Doctor of Pedagogical Sciences, Professor

Aliyev B. – Doctor of philosophy, professor

Gafurov D. O. – Doctor of Philosophy (PhD)

Shomurodov R.T. – Candidate of Economic Sciences (PhD), Associate Professor

Mirzayeva F.O. – Doctor of Philosophy in Pedagogical Sciences (PhD), Associate Professor

Jalilova S.X. – Candidate of Psychological Sciences (PhD), Associate Professor

Bafayev M.M. – Doctor of Philosophy in Psychological Sciences (PhD), Associate Professor

Usmonova D.I. – Associate Professor, Samarkand Institute of Economics and Service

Saifnazarov I. – Doctor of philosophy, professor

Nematov Sh.E. – Candidate of Pedagogical Sciences (PhD)

Tillashayeva X.A. – Candidate of Psychological Sciences (PhD), Associate Professor

Yuldasheva F.I. – Doctor of Philosophy in Pedagogical Sciences (PhD), Associate Professor

Doniyorov S. M. – Editor-in-Chief of the Editorial Board of the newspapers "Yangi Uzbekiston" and "Pravda Vostoka", Honored Journalist of the Republic of Uzbekistan, Candidate of Philological Sciences (PhD)

Yuldasheva D.B. – Doctor of Philosophy (PhD) in Philological Sciences, Associate Professor

Tangriyev A.T. – is a professor of Tashkent State University of Economics

Ashurov R. R. – doctor of philosophy (PhD) in psychology

Panjiyev M. A. – First Deputy Head of the Department of Preschool and School Education of the Kashkadarya Region

Khudaiberganov N. A. – Senior Researcher of the Department of Natural Sciences of the Khorezm Mamun

Academy, Doctor of Philosophy (PhD) in Biological Sciences

“Maktabgacha va maktab ta’limi” jurnali O‘zbekiston Respublikasi Oliy attestatsiya komissiyasining quyidagi qarorlariga asosan pedagogika va psixologiya fanlari bo‘yicha falsafa doktori (PhD) hamda fan doktori (DSc) ilmiy darajasiga talabgorlarning dissertatsiyalaridagi asosiy ilmiy natijalarni chop etish uchun milliy ilmiy nashrlar ro‘yxatiga kiritilgan:

Pedagogika fanlari bo‘yicha: OAK Kengashi tavsiyasi (26.08.2024-y., №11-05-4381/01) asosida:

- Ekspert kengashi (29.10.2024-y., №10)
- Rayosat qarori (31.10.2024-y., №363/5)

Psixologiya fanlari bo‘yicha: Toshkent davlat pedagogika universiteti murojaatiga asosan OAK tavsiyasi (24.04.2025-y., №11-05-2566/01):

- Ekspert kengashi (25.05.2025-y., №10)
- Rayosat qarori (08.05.2025-y., №370/5)

“Maktabgacha va maktab ta’limi”
jurnali

26.09.2023-yildan

O‘zbekiston Respublikasi Prezidenti
Administratsiyasi huzuridagi Axborot
va ommaviy kommunikatsiyalar
agentligi tomonidan **№C-5669363**
reyestr raqami tartibi bo‘yicha
ro‘yxatdan o‘tkazilgan.

Litsenziya raqami: **№136361**

MUNDARIJA

Maktabgacha ta'lim tashkiloti innovatsion faoliyatini rivojlantirish jarayoni.....	14
Ibragimova Gulsanam Nematovna	
Sun'iy intellekt texnologiyalarining ta'lim metodikasida qo'llanilishi va o'qituvchi kompetentligiga ta'siri	22
Abduyev Sheroz	
Boshlang'ich ta'limda "tabiatshunoslik" fanini raqamli platformalar orqali o'qitish metodikasini takomillashtirish: 5e modeli asosida dizayn, baholash va joriy etish.....	25
Ahmadaliyev Shohruh Bahromjon o'g'li	
Ingliz va rus leksikografiyasida o'zbek milliy taom nomlarining lingvistik tahlili	30
Bobojonova Zarina Rashidovna	
Rahbarlarda til bilish darajasi va hissiy intellekt (eq): o'zaro bog'liqlikni o'rganish	34
Isaqulova Baxtigul Xo'jamovna	
Frazeologizmlarni o'rgatishda matn asosida integratsiyalashgan dars modeli: xorijiy til o'rganuvchilar tajribasi	38
Jumayeva Sadbarg Mirolimovna	
O'zbekistonda maktabgacha ta'lim tashkilotlarida inklyuziv ta'limni tashkil etishning o'ziga xos xususiyatlari: rivojlangan davlatlar tajribasi tahlili	42
Karimova Moxichehra Rixsibayevna	
Rus va ingliz tillarida sharqona realiyalarning leksik-semantik tasnifi	46
Kulmamatova Aziza Do'stmamat qizi	
TRIZ metodikasi asosida texnokratik bolalar bilan ishlash tizimini takomillashtirish	50
Orifjonova Mavludaxon Abduqaxxor qizi	
Raqamli ta'lim muhitida pedagogik kompetensiyalarni rivojlantirish.....	53
Raximberganova Munajat Muzaffar qizi	
Structure of Social Conflict and Stages of its Development	57
Zaynutdinova Shahnoza Yuldashevna	
Bo'lajak boshlang'ich sinf o'qituvchilarining ijodiy faoliyatini baholash va rag'batlantirish tizimini takomillashtirish.....	60
Abduraxmonova Nigoraxon Akramali qizi	
Expression of National Mental Characteristics in the Uzbek Lullaby.....	64
Alimbayeva Shaxlo Tursunovna	
Bo'lajak "texnologiya" fani o'qituvchilarini kasbiy faoliyatga tayyorlashda kreativ kompetentlikni rivojlantirish tizimining pedagogik zarurati	69
Avazov G'oyibnazar Berdiyevich	
Bo'lajak tarbiyachilarda integratsiyalashgan ta'lim faoliyatini rivojlantirish orqali kommunikativ salohiyatini shakllantirish	72
Baratova Yulduz Asadullayevna	
Umumta'lim maktablarida molekulyar fizikani o'qitishning hozirgi holati	76
Boymirov Sherzod Tuxtayevich, Xudoynazarova Visola Musurmonqul qizi	
Ingliz tilini o'qitishda talabalarining mustaqil ta'lim olish kompetensiyasini akt vositasida rivojlantirish	80
Ergasheva Sevaraxon Ravshanjon qizi	
Maktabgacha ta'lim pedagoglarining kasbiy kompetentligini rivojlantirish istiqbollari.....	84
O'rinova Feruzaxon O'ljayevna, Karimova Gulzodaxon Marufjon qizi	
IIV litsey o'quvchilarining liderlik kompetensiyasini rivojlantirishning psixologik xususiyatlari.....	90
Gadoyeva Dildora Baxtiyorovna	
Improving the System of Human Resource Capacity Management in Higher Education Institutions: Evidence from Uzbekistan	98
Imomov I., Umirova D.	
Maktabgacha ta'lim tashkilotlarida tarbiyalanuvchilarni mantiqiy va tanqidiy fikrlashga o'rgatishning zamonaviy usullari.....	104
Iskandarova Munisa Bahodir qizi	
Tarbiyachi-pedagoglarning emotsional kompetensiyasini rivojlantirish	107
Jovmirzayeva Nargiza Quvondiqovna	



Maktabgacha ta'lim yoshdagi giperaktiv bolalarga ta'lim berishning pedagogik-psixologik usullari.....	110
<i>Jo'rayeva Nargiza Toirovna, Kamalova Sarvinoz</i>	
Blum taksonomiyasi asosida ilmiy kompetentlikni takomillashtirishning o'ziga xos xususiyatlari.....	113
<i>Mustafayeva Nilufar Ulashovna</i>	
Maktabgacha yoshdagi ovoz buzulishiga ega bolalar bilan guruhli mashg'ulotlarni tashkil qilish	117
<i>Umida O'tbasarova Mexmanovna, Maksudbekova Xovvajon Xamidbek qizi</i>	
Bolalar jamoasida do'stona munosabatlarni shakllantirishda rivojlanish markazlarida loyiha asosida o'qitish texnologiyasidan foydalanish usullari	121
<i>Quronova Ismigul Xolmurod qizi</i>	
Kichik maktab yoshidagi o'quvchilarda innovatsion metodlar orqali o'z-o'zini rivojlantirish ko'nikmalarini shakllantirish metodikasi.....	126
<i>Rustamova Davlatxon Toyirjon qizi</i>	
Oliy ta'limda tarbiyaviy faoliyatni tashkil etishning innovatsion modellari	131
<i>Sanayeva Surayyo Bobonazarovna</i>	
"Tibbiy radiologiya" fanini o'qitishda pedagogik muloqot orqali tanqidiy operativ muloqotni o'stirishning o'ziga xos xususiyatlari.....	139
<i>Shukurova Sevara Ilhomovna</i>	
Improving High Jump Techniques	143
<i>Tajimbetov Anvar Tengelbayevich</i>	
Filologik va ijtimoiy-siyosiy fanlarda ta'lim jarayonining innovatsion metodlari.....	146
<i>Yuldasheva Dilnoza Bekmurodovna</i>	
Понятие логического мышления и его особенности у младших школьников.....	149
<i>Ахмаджонова Нозима Нодиржон қизи</i>	
Интеграция психологии, обучения английскому языку, дошкольного образования и туризма: междисциплинарная модель формирующего опыта	152
<i>Омонуллаева Дилофуза Асадулла қизи</i>	
Maktabgacha yoshdagi bolalarning o'yin faoliyatida ijtimoiy motivlarni shakllantirish usullari.....	157
<i>Abduvaxobova Nodira</i>	
Boshlang'ich ta'limda kognitiv faollikni rivojlantirishning afzalliklari.....	160
<i>Ismailova Nozima Umaraliyevna</i>	
Boshlang'ich sinf o'quvchilarini matnни tahlil qilishga o'rgatishda zamonaviy yondashuvlarning ahamiyati.....	164
<i>Utanbayeva Dildora Abdixadirovna</i>	
Dorivor o'simliklar kursini o'qitish metodikasini takomillashtirishda keys texnologiyalaridan foydalanish	168
<i>Mirzaboyev Timur Bisenbay o'g'li</i>	
Oliy ta'lim talabalarida ijtimoiy-axloqiy kompetensiyani rivojlantirish: empirik tadqiqot natijalari	171
<i>To'raqulov Akbar Rustam o'g'li</i>	
Gerontotexnologiya ijtimoiy-pedagogik innovatsiya sifatida	175
<i>Temirova Muyassar Abdulkarim qizi</i>	
O'quvchilarni ma'naviy-axloqiy tarbiyalashda Sharq mutafakkirlarining qarashlaridan foydalanish	180
<i>Raximova Surayyo Otabek qizi</i>	
Yoshlarni kasb tanlashda ruhiy tayyorgarlik va shaxsiy qobiliyatlarni baholash	183
<i>Biysenov Temirbek Taumuratovich</i>	
Talabalarni ta'limiy qadriyatlar asosida pedagogik faoliyatga tayyorlash tizimini takomillashtirishning ahamiyati.....	188
<i>Choriyeva Surayyo Choriyevna</i>	
Differences Between Computer-Based and Paper-Based Assessment in Inclusive Education	192
<i>Davidova Sayyora Sirojiddin kizi</i>	
Raqamli muhit sharoitida ma'naviy-axloqiy tarbiya jarayonining pedagogik modeli va tajriba-sinov natijalari	196
<i>Donayeva Nozimaxon Norbo'tayevna</i>	
Intellekt xarita yordamida o'quvchilarda "emotsional intellekt"ni rivojlantirish.....	201
<i>G'aniyev Abduqahhor Gadoyevich</i>	
Maktabgacha va kichik maktab yoshidagi bolalarda o'yin faoliyatining psixologik-pedagogik ahamiyati	206
<i>Isayeva Mushtariy Alisher qizi</i>	
Umumiy o'rta ta'lim muassasalarini innovatsion yondashuv asosida boshqarishning nazariy asoslari	210
<i>Mannanova Nargiza Xaydarovna</i>	



Ingliz tilini o'rgatishda ona tilidan keng foydalanishning salbiy va ijobiy jihatlari	215
Masharipova Kumushoy Amin qizi	
The Relationship Between Critical Thinking and Reading Comprehension in Primary School Students.....	218
Mavlonova Dildora Shukhrat kizi	
Tasviriy san'at mashg'ulotlarida zamonaviy metodlardan foydalanish	222
N. K. Musayeva, U. O. Ziyatova	
Singapurning ta'lim falsafasi: korporativ madaniyatni ma'naviy-ma'rifiy rivojlanish bilan integratsiyalash ...	226
Nishonov Xayrulla Xolmirzaevich	
The Anthropocentric Paradigm in Modern Linguistics: Cognitive Linguistics and Linguacultural Studies in The Study of Language, Consciousness, and Culture	230
Rajabova Shaxlo Shodmonovna	
Bugungi globallashuv davrida ta'lim tizimini rivojlantirish va uning sifatini oshirishda nostandart yondashuvning ahamiyati	234
Ramazonova Salomat Saidovna	
Bo'lajak boshlang'ich sinf o'qituvchilarini kreativ sinflar ishini tashkil etishga tayyorlash	238
Saidova Gulruh Halim qizi	
O'zbek oilalarida ota-ona va farzand munosabatlarini tashxis qilishning psixologik xususiyatlari (Farg'ona vodiysi misolida).....	242
Turg'unboeva Azizaxon G'ulomovna	
Сущность и специфика развития билингвизма у детей дошкольников	246
Истамова Нигора Азимжановна	
Zamonaviy rahbarning innovatsion boshqarish texnologiyalaridan foydalanishning afzalliklari	249
Xakimova Dildora Mashrabjonovna	
Креативный подход к развитию лингвометодического мышления студентов-филологов	253
Ходжаниязова Айгуль Айтмуратовна	

DIFFERENCES BETWEEN COMPUTER-BASED AND PAPER-BASED ASSESSMENT IN INCLUSIVE EDUCATION

Davidova Sayyora Sirojiddin kizi

PhD candidate, Department of English linguistics,
The national university of Uzbekistan named after Mirzo Ulugbek,

Abstract: Inclusive education assessment plays a crucial role in ensuring equity, openness and fairness for students with diverse needs. With the development of digital technologies, computer-based assessment (CBA) is increasingly replacing traditional paper-based assessment (PBA). This article explores the key differences between CBA and PBA in the context of inclusive education, focusing on accessibility, flexibility, reliability and student engagement. Using comparative analysis and a literature review, the study identifies the potential and challenges of each approach. The results suggest that while paper-based methods remain useful in certain contexts, computer-based assessment provides greater flexibility, integration of assistive technologies and personalized feedback needed for inclusive education.

Key words: Inclusive education; computer-based assessment; paper-based assessment; accessibility; student engagement; digital inclusion.

Annotatsiya: Inklyuziv ta'limda baholash jarayoni turli ehtiyojlarga ega bo'lgan talabalarda tenglik, ochiqlik va adolatni ta'minlashda muhim rol o'ynaydi. Raqamli texnologiyalarning rivojlanishi natijasida kompyuterga asoslangan baholash (CBA) tobora an'anaviy qog'ozga asoslangan baholash (PBA)ni siqib chiqarmoqda. Ushbu maqolada inklyuziv ta'lim kontekstida CBA va PBAning asosiy farqlari – kirish imkoniyati, moslashuvchanlik, ishonchlilik va talabalar faolligi nuqtai nazaridan tahlil qilinadi. Qiyosiy tahlil va adabiyotlar sharhi asosida har bir yondashuvning imkoniyatlari va muammolari aniqlanadi. Natijalar shuni ko'rsatadiki, qog'ozga asoslangan usullar ayrim holatlarda foydali bo'lib qolayotgan bo'lsa-da, kompyuterga asoslangan baholash inklyuziv ta'lim uchun zarur bo'lgan yuqori darajadagi moslashuvchanlik, yordamchi texnologiyalarni integratsiyalash va shaxsiylashtirilgan fikr-mulohazalarni ta'minlab beradi.

Kalit so'zlar: inklyuziv ta'lim; kompyuterga asoslangan baholash; qog'ozga asoslangan baholash; kirish imkoniyati; talabalar faolligi; raqamli inklyuziya.

Аннотация: Оценка в инклюзивном образовании играет важную роль в обеспечении равенства, открытости и справедливости для студентов с различными потребностями. С развитием цифровых технологий компьютерное тестирование (CBA) всё активнее заменяет традиционные бумажные формы оценки (PBA). В статье рассматриваются ключевые различия между CBA и PBA в контексте инклюзивного образования с акцентом на доступность, гибкость, надёжность и вовлечённость студентов. На основе сравнительного анализа и обзора литературы выявлены преимущества и ограничения каждого подхода. Результаты показывают, что, несмотря на сохранение значимости бумажных методов в отдельных ситуациях, компьютерное тестирование обеспечивает большую гибкость, интеграцию вспомогательных технологий и персонализированную обратную связь, необходимую для инклюзивного образования.

Ключевые слова: инклюзивное образование; компьютерное тестирование; бумажное тестирование; доступность; вовлечённость студентов; цифровая инклюзия.

INTRODUCTION

Assessment is central to the learning process as it measures student achievement, monitors progress, and informs instructional decisions. It is not only a tool for evaluation, but also an important mechanism for promoting learning, motivating students, and ensuring accountability in education systems. In inclusive education settings, where students with diverse abilities and needs learn together, assessment plays an even more important role. It must ensure fairness, accessibility, validity, and reliability so that every student—regardless of disability, background, or learning style—has an equal opportunity to demonstrate their knowledge and skills.

Traditionally, paper-based assessments (PBAs) have dominated education systems around the world due to their simplicity, affordability, and familiarity. Paper-based tests are easy to distribute, require minimal tech-



nological infrastructure, and can be administered in almost any educational setting. However, PBAs also have limitations, especially in inclusive contexts. For example, students with visual impairments may require Braille or large-print versions, while students with physical disabilities may depend on scribes, making the process less independent and potentially intimidating. In addition, PBAs often limit the range of assessment formats to text-based responses, which may not fully capture the abilities of diverse learners.

This article aims to compare computer-based and paper-based assessments in inclusive education settings. It highlights their advantages and limitations and evaluates how each method affects the learning experience of students with disabilities. By analyzing accessibility, adaptability, engagement, fairness, and practicality, this study contributes to the ongoing debate about how assessment systems can best support equity and inclusion in diverse learning environments.

RESEARCH METHODOLOGY

This study uses a qualitative comparative approach that combines insights from literature reviews, case studies, and observational reports in the context of inclusive higher education. The aim is not only to compare computer-based assessment (CBA) with paper-based assessment (PBA), but also to examine how well each method aligns with the principles of inclusive education. The methodology is structured around thematic comparisons of key indicators that reflect essential dimensions of assessment in different learning environments.

- **Accessibility.** Accessibility refers to the extent to which assessments provide equal opportunities for learners with disabilities to demonstrate their knowledge and skills. In CBA, this includes the integration of assistive technologies such as screen readers, Braille displays, speech-to-text systems, and adjustable font sizes. In PBA, accessibility often relies on manual accommodations such as Braille test papers, large-print copies, or human scribes. This measure evaluates the independence, dignity, and equity afforded to students by each approach.
- **Adaptability.** Adaptability considers how easily assessment tasks can be adjusted to meet diverse student needs. CBA supports adaptive testing, multimedia-based tasks (audio, video, graphics), and flexible time settings. In contrast, PBA is static and fixed, limiting personalization. The study analyzes how adaptability affects students' ability to engage with content in ways that leverage their strengths and minimize barriers.
- **Engagement.** Engagement addresses the extent to which students are motivated, anxious, and actively involved in assessments. CBA often incorporates interactive formats, instant feedback, and gamified elements that can enhance engagement. However, students with limited digital literacy or test anxiety may find technology-based assessments stressful. PBA, while familiar and straightforward, lacks the dynamic elements that may promote deeper engagement.
- **Reliability and Fairness.** Reliability and fairness concern the accuracy, consistency, and impartiality of assessment outcomes. While technical issues are possible, CBA minimizes human bias through automated scoring. PBA, on the other hand, depends on human grading, which can introduce subjectivity and inconsistency, particularly in open-ended tasks. This comparison evaluates how each method supports fairness in inclusive settings where equity is critical.
- **Practicality.** Practicality relates to the feasibility of implementation, including costs, infrastructure, and teacher preparedness. CBA requires investment in digital devices, internet connectivity, software, and professional development. PBA is less costly, energy-efficient, and more widely available, particularly in resource-constrained settings. However, manual adaptations for students with disabilities often demand additional resources and labor.

By systematically applying these five indicators, the study develops a comparative framework that highlights the strengths and weaknesses of both computer-based and paper-based assessments. This methodology provides a deeper understanding of how each assessment type supports or hinders inclusive education and offers a foundation for further discussion and recommendations.

ANALYSIS AND RESULTS

Comparing computer-based assessment (CBA) and paper-based assessment (PBA) across five specific measures reveals clear differences in how each approach supports inclusive education. CBA demonstrates significant accessibility benefits by integrating assistive technologies such as screen-reading software for students with visual impairments, speech-to-text software for those with physical disabilities, and customizable settings (e.g., font size, background color, or extended time options). These features enable students to participate more independently and with greater dignity, reducing their reliance on external support. In contrast,

PBA often requires manual adaptations such as braille, large-format text versions, or human scribes. While effective in some cases, these accommodations are time-consuming, costly, and may unintentionally highlight differences between students, thereby undermining the principles of inclusion.

CBA is highly adaptable, offering adaptive tests in which the difficulty of questions can be adjusted in real time based on student responses. It also supports multimedia tasks—videos, audio recordings, and interactive worksheets—that allow students to demonstrate knowledge in multiple ways. Moreover, instant scoring and feedback provide students with immediate insights into their performance. By comparison, PBA is static: once published, tests cannot be easily modified or customized, which limits personalization. As a result, students with different learning styles may find PBA less responsive to their needs. Digital platforms often incorporate interactive elements, instant feedback, and visually engaging formats that reduce test anxiety and increase motivation. For example, drag-and-drop or multimedia-based questions may feel more engaging than static paper-based tasks. However, students with low digital literacy or limited access to technology may find CBA uncomfortable, leading to frustration or disengagement. In contrast, PBA is familiar to most students and requires no technical skills, but it lacks interactive features and can feel monotonous, reducing motivation.

CBA enhances reliability and fairness by reducing human bias through automated scoring systems. For objective test formats such as multiple-choice or matching questions, CBA ensures consistency in scoring. It also provides teachers with detailed analyses that help identify gaps in student learning and development. Nonetheless, CBA's reliability is not absolute: technical glitches, connectivity issues, or software errors can create inequities during assessment. PBA, although free from such risks, relies heavily on human assessors, making it vulnerable to bias, inconsistency, rubric misapplication, or assessor fatigue. From a practical standpoint, PBA is simpler and less costly to implement because it requires minimal infrastructure and can be conducted anywhere without electricity, internet access, or specialized devices. This advantage is especially relevant in resource-poor contexts. However, adapting PBA for students with disabilities (e.g., braille materials or human scribes) often raises costs and logistical challenges. In contrast, CBA demands significant investment in digital devices, reliable internet, specialized software, and teacher training. These costs may be prohibitive in underfunded institutions or rural areas. Yet, once infrastructure is established, CBA streamlines administrative processes, reduces paper use, and provides long-term efficiencies in data management and feedback delivery.

The findings suggest that CBA has strong potential to improve inclusive education, particularly by supporting learners with diverse needs through accessible and flexible tools. Notably, CBA aligns closely with the principles of Universal Design for Learning (UDL). By offering multiple means of representation (text, audio, video), engagement (interactive and gamified tasks), and expression (written responses, voice input, multimedia presentations), CBA expands the opportunities for students to demonstrate learning, thereby dismantling traditional barriers to participation. PBA, by contrast, remains resource-intensive. Although it requires minimal infrastructure and can be administered almost anywhere without technological literacy, its limitations are especially pronounced in inclusive education. Students with visual, physical, or cognitive disabilities often depend on significant manual accommodations (e.g., braille versions, scribes, or large print), which are expensive, time-consuming, and inconvenient. Furthermore, PBA offers little flexibility in task design and feedback, reducing its relevance for today's diverse classrooms. Taken together, the comparison suggests that both systems have merit, yet neither is sufficient on its own. A blended assessment model—combining the cost-effectiveness and familiarity of PBA with the innovation, flexibility, and accessibility of CBA—appears most promising. Such a model could gradually expand digital inclusion while reducing risks of technological exclusion. For example, institutions could adopt CBA for formative assessment, providing rapid feedback and flexible learning opportunities, while continuing to use PBA for high-stakes exams in contexts with limited technology infrastructure.

CONCLUSION

This study highlights the significant differences between computer-based assessment (CBA) and paper-based assessment (PBA) in the context of inclusive education. CBA offers substantial advantages in terms of convenience, flexibility, reliability, and fairness, especially for students with disabilities who rely on assistive technologies and adaptive assessment tools. It also provides rapid feedback and data-driven insights that support improvements in teaching and learning. However, its successful implementation largely depends on technological infrastructure, digital literacy, and financial investment—factors that are not equally accessible in all educational contexts. The findings suggest that the most effective path lies in hybrid assessment models that combine the strengths of both approaches. For example, CBA may be prioritized for formative and individual assessment, while PBA can remain a practical tool for summative or large-scale testing in resource-limited contexts. This balance ensures both inclusivity and practicality.



Investments in infrastructure, teacher training, and assistive technology are essential to achieve this vision. Moreover, assessment policies should be grounded in the principles of equity and universal design for learning, ensuring that every student—regardless of disability, background, or context—has a fair opportunity to demonstrate knowledge and skills. Ultimately, the choice between CBA and PBA should be framed as complementary rather than as replacements: together they can create more equitable, flexible, and inclusive assessment systems that reflect the diversity of 21st-century classrooms.

References:

1. Rose D. H., Meyer A. Teaching Every Student in the Digital Age: Universal Design for Learning. Alexandria, VA: ASCD; 2002.
2. Burgstahler S. Universal Design in Education: Principles and Applications. Minneapolis, MN: DO-IT, University of Washington; 2015.
3. Emerson E., et al. Computer-based assessment for students with disabilities: A review of assistive technologies. *Assistive Technology Journal*. 2018;12(4):220–234.
4. Smith J., Brown L. Flexibility and engagement: The effects of multimedia assessment on student motivation. *Journal of Inclusive Education*. 2019;8(1):45–58.
5. Jones P., Miller K. Reliability and fairness in automated grading systems: A comparative study. *Educational Assessment Review*. 2020;15(2):78–95.
6. World Bank. Bridging the Digital Divide in Education: Challenges and Opportunities. Washington, DC: World Bank; 2021.
7. Novak A. Practicality of digital vs paper-based assessments in low-resource settings. *International Journal of Educational Technology*. 2022;10(3):112–126.

- 
- 13.00.00 Pedagogika fanlari
 - 13.00.01 Pedagogika nazariyasi. Pedagogik ta'limotlar tarixi
 - 13.00.02 Ta'lim va tarbiya nazariyasi va metodikasi (sohalar bo'yicha)
 - 13.00.03 Maxsus pedagogika
 - 13.00.04 Jismoniy tarbiya va sport mashg'ulotlari nazariyasi va metodikasi
 - 13.00.05 Kasb-hunar ta'limi nazariyasi va metodikasi
 - 13.00.06 Elektron ta'lim nazariyasi va metodikasi (ta'lim sohaları va bosqichlari bo'yicha)
 - 13.00.07 Ta'limda menejment
 - 13.00.08 Maktabgacha ta'lim va tarbiya nazariyasi va metodikasi
 - 13.00.09 Ijtimoiy pedagogika
 - 07.00.00 Tarix fanlari
 - 19.00.00 Psixologiya fanlari
 - 01.00.00 Fizika-matematika fanlari
 - 02.00.00 Kimyo fanlari
 - 03.00.00 Biologiya fanlari
 - 09.00.00 Falsafa fanlari
 - 10.00.00 Filologiya fanlari
 - 11.00.00 Geografiya fanlari



MAKTABGACHA VA MAKTAB TA'LIMI

Mas'ul muharrir: Ramzidin Ashurov

Ingliz tili muharriri: Murod Xoliyorov

Musahhih: Alibek Zokirov

Sahifalovchi va dizayner: Iskandar Islomov

2025. №9

© Materiallar ko'chirib bosilganda "Maktabgacha va maktab ta'limi" jurnali manba sifatida ko'rsatilishi shart. Jurnalda bosilgan material va reklamalardagi dalillarning aniqligiga mualliflar ma'sul. Tahririyat fikri har vaqt ham mualliflar fikriga mos kelamasligi mumkin. Tahririyatga yuborilgan materiallar qaytarilmaydi.

"Maktabgacha va maktab ta'limi" jurnali 26.09.2023-yildan O'zbekiston Respublikasi Prezidenti Adminstratsiyasi huzuridagi Axborot va ommaviy kommunikatsiyalar agentligi tomonidan №C-5669363 reyestr raqami tartibi bo'yicha ro'yxatdan o'tkazilgan.
Litsenziya raqami: № 136361.

Manzirimiz: Toshkent shahar, Yunusobod tumani
19-mavze, 17-uy.