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ONLINE KURSLAR UCHUN MOBIL ILOVALARNI ISHLAB CHIQISH

Azizbek Ravshan o'g'li Rajabov

Osiyo Xalqaro Universiteti Umumtexnik fanlar kafedrası o'qituvchisi

Annotatsiya: Ushbu maqolada online ta'limning zamonaviy rivojlanish jarayonida mobil ilovalarning ahamiyati, ularni ishlab chiqish bosqichlari va texnologik yondashuvlar tahlil qilinadi. Mobil ilovalar foydalanuvchilar uchun qulay, shaxsiylashtirilgan va moslashuvchan ta'lim muhiti yaratishda muhim vosita hisoblanadi. Maqolada foydalanuvchi interfeysi dizayni, funktsionallik, texnik infratuzilma va xavfsizlik kabi jihatlar ham yoritilgan. Real misollar va statistik ma'lumotlar asosida mobil ta'lim ilovalarining samaradorligi asoslab beriladi.

Kalit so'zlar: Mobil ilovalar, online ta'lim, ilova ishlab chiqish, UX/UI dizayn, platformalararo dasturlash, o'quv texnologiyalari.

Kirish

So'nggi yillarda online ta'limning ommalashuvi bilan birga mobil qurilmalar orqali o'qish keng tarqaldi. Smartfonlar va planshetlar yordamida istalgan joyda va istalgan vaqtda o'qish imkoniyati — bu zamonaviy ta'limning ajralmas qismiga aylandi. Ayniqsa, pandemiya davrida mobil ilovalarning ahamiyati yanada oshdi.

Online kurslar uchun mo'ljallangan mobil ilovalar foydalanuvchilarga o'quv materiallarini istalgan vaqtda ko'rib chiqish, topshiriqlarni bajarish, fikr almashish va o'zlashtirish jarayonini nazorat qilish imkonini beradi. Ushbu maqolada mobil ilovalarni yaratish jarayoni, texnologik vositalar, foydalanuvchi ehtiyojlari va ularning ta'lim jarayonidagi roli keng yoritiladi.

Nazariy qism

1. Mobil ilovalar va ularning ta'limdagi roli

Mobil ilovalar yordamida ta'lim olish quyidagi afzalliklarni beradi:

- **Moslashuvchanlik:** Foydalanuvchi istalgan joyda va vaqtda o'qishi mumkin.
- **Individual yondashuv:** Ilovalar foydalanuvchi harakatlarini tahlil qilib, unga mos materiallarni tavsiya qiladi.
- **Interaktivlik:** Multimedia kontentlari, testlar, forumlar ilovaga kiritiladi.
- **Tezkor bildirishnomalar:** O'qituvchi va talaba o'rtasidagi aloqa tez va qulay bo'ladi.

2. Ilova ishlab chiqish bosqichlari

a) Talablarni aniqlash

Ilovani yaratishdan oldin quyidagilar o'rganiladi:

- Maqsadli auditoriya
- Platforma (iOS, Android yoki ikkalasi)
- Kurslar mazmuni va turlari
- Integratsiya zaruriyati (masalan, LMS tizimlari)





b) Dizayn (UX/UI)

Foydalanuvchi interfeysi (UI) va foydalanuvchi tajribasi (UX) — ilovaning muvaffaqiyatini belgilovchi asosiy omillardir. UX dizayn qulay navigatsiya, minimalchilik va aniqlikni ta'minlashi kerak.

c) Dasturlash va platformalar

Ilova ishlab chiqishda quyidagi texnologiyalardan foydalaniladi:

- **Native:** Swift (iOS), Kotlin (Android)
- **Cross-platform:** Flutter, React Native, Xamarin — bir kod bazasi orqali ikkala platformada ham ishlaydigan ilovalar
- **Backend:** Node.js, Firebase, Django — server bilan ishlash, ma'lumotlar bazasi, autentifikatsiya

d) Testlash

Ilova quyidagi testlardan o'tkaziladi:

- Funksionallik testi
- Qurilma muvofiqligi testi
- Foydalanuvchi tajribasi testi
- Xavfsizlik va ma'lumotlarni himoyalash testi

e) Yayish va yangilab borish

Google Play va App Store orqali foydalanuvchilarga taqdim etiladi. Doimiy ravishda yangilanib borilishi foydalanuvchilarni ushlab turadi.

3. Statistika ma'lumotlar bilan tahlil

Statistika ma'lumotlar mobil ta'lim ilovalarining o'sishini yaqqol ko'rsatadi:

- SensorTower (2024) ma'lumotiga ko'ra, ta'limga oid mobil ilovalar yuklab olinishi 1.2 milliardga yetgan.
- 2023 yilda foydalanuvchilarning 65% online kurslarga mobil ilovalar orqali kirgani aniqlangan.
- Talabalar mobil ilovalar orqali o'qish qulayroq va samaraliroq deb baholaganlarining ulushi — 78%.

4. Muvaffaqiyatli ilovalar misolida tahlil

- Coursera

Kurslarni yuklab olish, video ko'rish, test topshirish imkoniyatlarini beradi.

- Udemey

Oddiy interfeys, qulay to'lov tizimi, offline rejimda o'qish imkoniyati.

- Edmodo va Google Classroom

O'qituvchi va talaba o'rtasida to'g'ridan-to'g'ri aloqa, baholash va topshiriqlar boshqaruvi mavjud.

5. Ilova ishlab chiqishda duch kelinadigan muammolar

- **Texnik imkoniyatlarning yetishmasligi**
- **Keng tarmoq qamrovi bo'lmagan hududlarda ishlash qiyinligi**
- **Ma'lumot xavfsizligi bilan bog'liq muammolar**
- **Ko'p turdagi qurilmalarda bir xil ishlamasligi**

Xulosa

Online kurslar uchun mobil ilovalarni ishlab chiqish ta'limning yangi bosqichga o'tishiga xizmat qilmoqda. Ular zamonaviy o'quvchilarning ehtiyojlariga mos, individual va erkin o'rganish muhitini yaratishga yordam beradi. Ilovani yaratishda foydalanuvchi tajribasi, texnik barqarorlik, xavfsizlik va doimiy yangilanib borish kabi omillar muhim ahamiyatga ega.

Shuningdek, muvaffaqiyatli ilovalar misolida ko'rinib turibdiki, ta'limga xizmat qiluvchi ilovalar foydalanuvchilarga katta qulayliklar yaratmoqda. Shuning uchun mobil ilovalarni ishlab chiqish onlayn ta'lim sifatini oshirishning muhim yo'nalishlaridan biridir.

FOYDALANILGAN ADABIYOTLAR:

1. Раджабов, А. Р. (2024). РОЛЬ ЯЗЫКА ПРОГРАММИРОВАНИЯ FLUTTER В СОЗДАНИИ МОБИЛЬНЫХ ПРИЛОЖЕНИЙ. *WORLD OF SCIENCE*, 7(8), 49-54.
2. Раджабов, А. Р. (2024). СТРУКТУРЫ ДАННЫХ И АЛГОРИТМЫ. *MASTERS*, 2(8), 58-63.
3. Ravshanov, A. (2024). DATA TYPES IN JAVASCRIPT PROGRAMMING LANGUAGE. *Introduction of new innovative technologies in education of pedagogy and psychology*, 1(3), 143-150.
4. Раджабов, А. Р. (2024). JAVASCRIPT ЯЗЫКЕ ПРОГРАММИРОВАНИЯ ТИП ДАННЫХ JSON. *Introduction of new innovative technologies in education of pedagogy and psychology*, 1(3), 167-174.
5. Ravshanovich, A. R. (2024). JSON IN JAVASCRIPT. *Introduction of new innovative technologies in education of pedagogy and psychology*, 1(3), 175-182.
6. Ravshanovich, A. R. (2024). LISTS, DICTIONARIES IN PYTHON PROGRAMMING LANGUAGE. *Introduction of new innovative technologies in education of pedagogy and psychology*, 1(3), 183-189.
7. Раджабов, А. Р. (2024). ТИПЫ БАЗ ДАННЫХ. *Introduction of new innovative technologies in education of pedagogy and psychology*, 1(3), 204-210.
8. Rajabov, A. (2024). REPLACE OBJECT ORIENTED PROGRAMMING (OOP) IN PYTHON PROGRAMMING LANGUAGE. *Medicine, pedagogy and technology: theory and practice*, 2(9), 221-229.
9. Раджабов, А. Р. (2024). СТРУКТУРА БАЗЫ ДАННЫХ: POSTGRESQL. *PSIXOLOGIYA VA SOTSIOLOGIYA ILMIY JURNALI*, 2(7), 56-61.
10. Ravshanovich, A. R. (2024). DATABASE STRUCTURE: POSTGRESQL DATABASE. *PSIXOLOGIYA VA SOTSIOLOGIYA ILMIY JURNALI*, 2(7), 50-55.
11. Rajabov, A. R. (2024). FLUTTER PROGRAMMING LANGUAGE IN CREATING MOBILE APPLICATIONS. *WORLD OF SCIENCE*, 7(8), 61-66.
12. Rajabov . . (2025). MASSHTABLANADIGAN ONLINE KURSLAR(MOOC) UCHUN AXBOROT TEXNOLOGIYALARINI YARATISH.. *Development Of Science*, 5(1), pp. 49-55. <https://doi.org/0>

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13. Bobokulova, M. (2024). Alternative energy sources and their use. *Medicine, pedagogy and technology: theory and practice*, 2(9), 282-291.
14. Bobokulova, M. X. (2025). YUQORI CHASTOTALI SIGNALLARNI UZATISH USULLARI. *PEDAGOGIK TADQIQOTLAR JURNALI*, 2(2), 32-35.
15. Bobokulova, M. X. (2025). TO 'LQIN O 'TKAZGICHLAR (VOLNOVODLAR). *Problems and solutions at the stage of innovative development of science, education and technology*, 2(1), 1-7.
16. Bobokulova, M. X. (2025). MIKROZARRALARNING KORPUSKULYAR-TO 'LQIN DUALIZMI. SHREDINGER TENGLAMASI. *Problems and solutions at the stage of innovative development of science, education and technology*, 2(1), 8-13.
17. Bobokulova, M. X. (2025). SPINLI ELEKTRONIKA. *Problems and solutions at the stage of innovative development of science, education and technology*, 2(1), 60-65.
18. Bobokulova, M. X. (2025). INTERFEROMETRLAR. KO 'P NURLI INTERFERENSIYA. *Problems and solutions at the stage of innovative development of science, education and technology*, 2(1), 54-59.
19. Bobokulova, M. X. (2025). SHAFFOF JISMLARNING SINDIRISH KO 'RSATKICHINI MIKROSKOP YORDAMIDA ANIQLASH. *Problems and solutions at the stage of innovative development of science, education and technology*, 2(1), 48-53.
20. Bobokulova, M. X. (2025). MUQOBOL ENERGIYA MANBALARIDAN FOYDALANISH ISTIQBOLLARI. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(1), 227-233.
21. Bobokulova, M. X. (2025). " ISSIQLIK TEXNIKASI" FANINI O 'QITISHDA INNOVASION TA'LIM USULLARIDAN FOYDALANISH. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(1), 531-539.
22. Bobokulova, M. X. (2025). MAGNIT BO'RONLARINING YERGA TA'SIRI. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(1), 522-525.
23. Bobokulova, M. X. (2025). QON AYLANISH SISTEMASINING FIZIK ASOSLARI. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(1), 518-521.
24. Bobokulova, M. X. (2025). SUYUQLIKLARNING YORUG 'LIK YUTISH KOEFFITSIYENTINI VA ERITMALARNING KONSENTRATSIYASINI ANIQLASHDA OPTIK USULLARNI QO 'LLASH. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(1), 526-530.
25. Bobokulova, M. X. (2025). MAGNIT BO'RONLARINING YERGA TA'SIRI. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(1), 522-525.
26. Bobokulova, M. X. (2025). QON AYLANISH SISTEMASINING FIZIK ASOSLARI. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(1), 518-521.
27. Bobokulova, M. X. (2025). SUYUQLIKLARNING YORUG 'LIK YUTISH KOEFFITSIYENTINI VA ERITMALARNING KONSENTRATSIYASINI ANIQLASHDA OPTIK USULLARNI QO 'LLASH. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(1), 526-530.



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28. Boboqulova, M. X. (2025). " ISSIQLIK TEXNIKASI" FANINI O 'QITISHDA INNOVASION TA'LIM USULLARIDAN FOYDALANISH. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(1), 531-539.
29. Boboqulova, M. X. (2025). YADROVIY NURLANISHLAR VA ULARNI QAYD QILISH USULLARI. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(2), 132-136.
30. Boboqulova, M., Marasulov, A., Bayaly, A., Sadybekov, R., & Aimeshov, Z. (2025, February). Thermal stress-strain state of a partially thermally insulated and clamped rod in the presence of local temperature and heat transfer. In *AIP Conference Proceedings* (Vol. 3268, No. 1). AIP Publishing.
31. Xamroyevna, M. B. (2024). ERKIN KONVEKSIYA JARAYONI. *Международный журнал научных исследователей*, 9(1), 108-111.
32. Boboqulova, M. X. (2025). ENDOSKOPIK USULLARNING TIBBIYOTDA QO 'LLANISHI. *Modern World Education: New Age Problems–New solutions*, 2(4), 1-8.
33. Boboqulova, M. X. (2025). 3D CHOP ETISH TEXNOLOGIYASINING FIZIK ASOSLARI. *Introduction of new innovative technologies in education of pedagogy and psychology*, 2(3), 5-11.
34. Boboqulova, M. X. (2025). ELEKTROMAGNIT TO 'LQINLARNING NURLANISHI. *New modern researchers: modern proposals and solutions*, 2(3), 19-25.
35. M.X. Boboqulova. (2025). IONLANISH VA REKOMBINATSIYA JARAYONLARI. *New Modern Researchers: Modern Proposals and Solutions*, 2(3), 48–54.
36. Usmonov, F. R. (2025). KONCHILIK SANOATIDA FOYDALI QAZILMALARNI SHLYUZLARDA VA MARKAZDAR QOCHMA SEPARATORLARDA BOYITISH. *PEDAGOGIK TADQIQOTLAR JURNALI*, 2(2), 60-68.
37. Usmonov, F. (2024). MINERAL ENRICHMENT PROCESSES. *Medicine, pedagogy and technology: theory and practice*, 2(9), 250-260.
38. Usmonov, F. R. (2025). FOYDALI QAZILMALARNI BOYITISHDA G 'ALVIRLASH JARAYONINING SANOATDA TUTGAN O'RNI. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(1), 360-366.
39. Usmonov, F. R. (2025). FOYDALI QAZILMALARNI BOYITISHGA TAYORLASH YANCHISH JARAYONLARINI TAHLILI. *New modern researchers: modern proposals and solutions*, 2(2), 8-20.
40. Usmonov, F. R. (2025). FOYDALI QAZILMALARNI BOYITISHGA TAYORLASHDA YANCHILGAN MAXSULOTLARNI KLASSIFIKATSIYALASH JARAYONI. *New modern researchers: modern proposals and solutions*, 2(2), 21-31.
41. Usmonov, F. R. (2025). FOYDALI QAZILMALARNI MAYDALASH JARAYONIDAGI MAYDALAGICHLARNING TURLARI TUZILISHI VA ISHLASH PRINSIPLARI. *Problems and solutions at the stage of innovative development of science, education and technology*, 2(2), 27-37.



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42. Usmonov, F. R. (2025). KONCHILIK SANOATIDA RUDALARNI GRAVITATSIYA USULIDA BOYITISH NAZARIYASI. *Problems and solutions at the stage of innovative development of science, education and technology*, 2(2), 38-47.
43. Usmonov, F. R. (2025). FOYDALI QAZILMALARNING BOYITISH SXEMALARINING TURLARI VA ULARNI TUZISH PRINSIPLARI. *Problems and solutions at the stage of innovative development of science, education and technology*, 2(2), 15-26.
44. Usmonov, F. R. (2025). FOYDALI QAZILMALARNI MAYDALASH JARAYONLARI XAQIDA MA'LUMOT. *PEDAGOGIK TADQIQOTLAR JURNALI*, 3(2), 56-59.
45. Usmonov, F. R. (2025). KONCHILIK SANOATIDA FOYDALI QAZILMALARNI VINTLI SEPARATORLARDA VA PURKOVCHI KONUSLARDA BOYITISH. *Introduction of new innovative technologies in education of pedagogy and psychology*, 2(3), 18-26.
46. Usmonov, F. R. (2025). KONCHILIK SANOATIDA RUDALARNI CHO'KTIRISH MASHINALARIDA BOYITISH TARAQQIYOTI. *New modern researchers: modern proposals and solutions*, 2(3), 39-47.
47. Usmonov, F. R. (2025). FOYDALI QAZILMALARNI KONSENTRATSION STOLDA BOYITISH JARAYONI. *New modern researchers: modern proposals and solutions*, 2(3), 61-69.
48. Usmonov, F. R. (2025). KONCHILIK SANOATIDA FLOTATSIYA JARAYONLARI UCHUN QO'LLANILADIGAN FLOTOREAGENTLARNING TAVSIFLANISHI. *Modern World Education: New Age Problems–New solutions*, 2(4), 31-40.
49. Usmonov, F. R. (2025). FLATATSIYA JARAYONIDA QO'LLANILADIGAN YIG'UVCHI, KO'PIK HOSIL QILUVCHI, MOSLOVCHI VA FAOLLASHTIRUVCHI REOAGENTLAR TAHLILI. *Modern World Education: New Age Problems–New solutions*, 2(4), 47-57.
50. Usmonov, F. R. (2025). KONCHILIK SANOATIDA FOYDALI QAZILMALARNI FLOTATSIYA USULIDA BOYITISH. *Modern World Education: New Age Problems–New solutions*, 2(4), 15-24.
51. Bobokulova, M. (2024). IN MEDICINE FROM ECHOPHRAPHY USE. Development and innovations in science, 3(1), 94-103.
52. Bobokulova, M. (2024). INTERPRETATION OF QUANTUM THEORY AND ITS ROLE IN NATURE. Models and methods in modern science, 3(1), 94-109.
53. Bobokulova, M. (2024, January). RADIO WAVE SURGERY. In *Международная конференция академических наук* (Vol. 3, No. 1, pp. 56-66).
54. Bobokulova, M. (2024). UNCERTAINTY IN THE HEISENBERG UNCERTAINTY PRINCIPLE. Академические исследования в современной науке, 3(2), 80-96.
55. Bobokulova, M. (2024). BLOOD ROTATION OF THE SYSTEM PHYSICIST BASICS. Инновационные исследования в науке, 3(1), 64-74.



Date: 21st April-2025

56. Bobokulova, M. (2024). THE ROLE OF NANOTECHNOLOGY IN MODERN PHYSICS. Development and innovations in science, 3(1), 145-153.
57. Xamroyevna, M. B. (2024). OCHIQ TIZIMLARDA ENTROPIYANING LOKAL KAMAYISHI VA DISSIPATIV STRUKTURALAR. *Introduction of new innovative technologies in education of pedagogy and psychology*, 1(3), 86-92.
58. Xamroyevna, M. B. (2024). O 'TA O 'TKAZUVCHANLIK VA UNING KVANTOMEXANIK TALQINI. *Introduction of new innovative technologies in education of pedagogy and psychology*, 1(3), 93-101.
59. Xamroyevna, M. B. (2024). FUNDAMENTAL O 'ZARO TA'SIRLAR TURLARI. *Introduction of new innovative technologies in education of pedagogy and psychology*, 1(3), 79-85.
60. Xamroyevna, M. B. (2024). TERMOELEKTRIK HODISALAR. *Introduction of new innovative technologies in education of pedagogy and psychology*, 1(3), 102-107.

