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IMPROVEMENTOFTHEMETHODOLOGICALSYSTEMFORTRAININGCOMPUTERTEACHERSBASEDONTHEINTEGRATIONAPPROACH

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Abstract. Thearticleexaminestheintegrationofpedagogicalandinformationtechnologiesasanintegrativeapproachtoeducation,thecreatorsofanintegrationenvironment,identifyingproblemsinthisenvironment,showingtheirsolutions,integratingpedagogicalandinformationtechnologiesincomputereducation,itspedagogicalandpsychologicalaspects.andopportunities,pedagogicalandinformational.Preparationofinformaticsteachersfortheintegrationoftechnologies,thedevelopmentofrequirementsforthem,theformationofprofessionalcompetencies,self-diagnostics,trainingintheformationanddevelopmentoftheirownmethodologicalsystem,experimentaltestingoftheseprocessesinpedagogicalpracticeandanalysisoftheresultsofexperiments,conclusionsandrecommendations.

Keywords. Integration,teachertrainingmodules,project,design,initial**.**

Introduction

Thenewvisionofeducationuntil2030,adoptedbyinternationalorganizations,theUnitedNationsanddevelopedcountries,focuseson“educationasakeydriverofdevelopmentandimportantactivitiesleadingtosustainabledevelopmentgoals”,whichincludesqualityeducation,educationpromotion,informationandcommunicationinlifelonglearning.Acceleratingtheuseoftechnology,pedagogicalknowledgeintheparationofqualifiedteachers:teachingtechnologies,methods,knowledgeoftheuseofmoderntools,professionalknowledge:specialization,knowledgeofthelegalframeworkthatregulateseducation.

Thetransferofsocietyfromtheindustrialtotheinformationstageopensupopportunitiesforusingnewinformationtechnologies:systemsthinking,self-education,buildinganopeneducationsystem,creatinginformationandmethodologicalsupportanditseffectiveuseineducationmanagement,trainingqualified,modernspecialists.andmore.

Alotofworkisbeingdonetoreformthelifelongeducationsystem,introducepedagogicalandinformationtechnologiesineducationandimprovetheeffectivenessoflearning,conductdistancelearningandcomput

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erizedconferencesbasedonacomprehensiveinformationandcommunicationdevelopmentprogram.sys tems,qualifiedinformaticsforlifelongeducationandtheneedtotraininformationtechnologyteachers.

ThestrategyofactionsforthefurtherdevelopmentoftheRepublicofUzbekistandefinesthetasks"Organiz ationoftheuseofinformationtechnologiesinhighereducationusingnewmethodsandtools",creatingane nvironmentforintegratingpedagogicalandinformationtechnologiesintotheeducationalprocessandaM ethodologicalsystemfortrainingteachersofinformaticsandinformationtechnologies.Development,im provementandimplementationisessential.

To implement the tasks set in the Presidentof Republic of Uzbekistan's Address to the Oliy Majlis of January 24, 2020, December 29, 2020 and the new edition of the Law "On Education", a completely new system of vocational education has been created, a reform of vocational schools, colleges and technical schools based on new approaches in accordance with international standards to ensure quality education in higher education, a sharp increase in the number of students, in the decree PQ-4623 of February 27, 2020 "On measures to further develop the field of teacher education", in the new edition of the Law "On Education" ORQ-637, dated On September 23, 2020, much attention is paid to the training of professional teachers who are able to use modern pedagogical and information technologies in the educational process.

MaterialsandMethods

Researchmethods.Comparative-
criticalstudyandanalysisofpolitical,scientificandmethodologicalliteratureontheprobleminthestudy;S tudyingDTS,curricula,textbooksanduniversitydocuments;sociologicalandpedagogical(observation,i nterview,questionnaire,test);design,modeling,pedagogicalexperiments;monitoring;methodssuchas mathematicalandstatisticalanalysisoftheresultswereused.

Purposeoftheresearch:Improvingthemethodologyfortrainingfutureteachersofinformaticsonthebasis ofintegrativeapproaches,theintegrationofpedagogicalandinformationtechnologiesandtheirintroducti onintoeducationalpractice.

Functions:

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pedagogicalandinformationtechnologiesasanintegrativeapproachtoeducation,theirintegration,organ izersoftheintegrationenvironment,identificationofproblemsarisinginthisenvironment,theirsolutions;

-
Coverageoftheintegrationofpedagogicalandinformationtechnologiesintotheprocessofteachingcomp uterscienceandinformationtechnology,itspedagogical,psychologicalaspectsandcapabilities;

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Developmentofrequirementsforteachersofinformaticsandinformationtechnologyinthefieldofintegra tionofpedagogicalandinformationtechnology;

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disclosureoftrainingandformationofprofessionalcompetenceofteachersofinformaticsandinformation technologyintheintegrationofpedagogicalandinformationtechnologies;

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Developmentandimplementationintopracticeofthemethodologicalsystemoftheteacherofinformatics andinformationtechnologiesintheintegrationofpedagogicalandinformationtechnologies;

-teachingdiagnosticsandself-
diagnosticsofateacherofinformaticsandinformationtechnologiesinthefieldofintegrationofpedagogic alandinformationtechnologies;

-
Observingthepreparationofinformaticsteachersfortheintegrationofpedagogicalandinformationtechn ologies,organizingpedagogicalexperiments,statisticalanalysisoftheresultsandrecommendationsfori mprovingtheeffectivenessoftheeducationalprocess.

Theobjectoftheresearchistheprocessofpreparingstudentsforundergraduatestudiesinthespecialty"Met hodsofTeachingInformatics"inhighereducation.

Thesubjectoftheresearchisthecontent,form,methodsandtoolsforthedevelopmentandimplementation ofamethodologicalsystemfortrainingteachersoffutureinformaticsandinformationtechnologiesinhigh ereducationalinstitutionsfortheintegrationofpedagogicalandinformationtechnologies.

Scientificnoveltyoftheresearch:

pedagogicalandinformationtechnologiesintheprocessoftrainingteachersofinformatics,theirintegratio n,theorganizersoftheintegrationenvironment,theproblemsarisinginthisenvironmentaredetermined,a ndthewaysoftheirsolutionareshown;

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Modelsofintegrationofpedagogicalandinformationtechnologiesineducationininformaticsandinform ationtechnologies,pedagogical,psychologicalaspectsandpossibilitiesofintegration;

-
Developmentofrequirementsforteachersofinformaticsandinformationtechnologyinthefieldofintegra tionofpedagogicalandinformationtechnology;

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disclosureofinformationonthetrainingandformationofprofessionalcompetenceofteachersofinformati csandinformationtechnologyinthefieldofintegrationofpedagogicalandinformationtechnologies;

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Developmentofamethodologicalsystemforateacherofinformaticsandinformationtechnologiesinthein tegrationofpedagogicalandinformationtechnologiesandits implementationineducationalpractice;

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testsandcriteriafortheintegrationofpedagogicalandinformationtechnologiesweredevelopedinorderto teachteachersofinformaticsandinformationtechnologiestocarryoutdiagnosticsandself-diagnostics;

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Observingtheintegrationofpedagogicalandinformationtechnologiesinthetrainingofinformaticsteach ers,organizedpedagogicalexperiments,statisticalanalysisoftheresultsandrecommendationsforimpro vingtheefficiencyoftheeducationalprocess.

Thescientificsignificanceoftheresearchresultsintheintegrationofpedagogicalandinformationtechnol ogiesinthepreparationofcurriculaandworkprogramsinthesubjects"Methodsofteachinginformatics"," Technologyofteachinganddesigninginformatics","Pedagogicalsoftwareandteachingtechnologies".t heircreation",contributingtothetrainingofteachersofinformaticsandinformationtechnology;Thedevel opmentofmodelsfortheintegrationofpedagogicalandinformationtechnologiesintothesystemofcontin uouseducation,thecontentofmeans,forms,methods,requirementsforthetrainingofteachersofinformati cs,theformationoftheirknowledge,skillsandabilitiescontributedtothetrainingofqualifiedteachersinthi sarea;isexplainedbythefactthataspecialistwhoiscreativelysuitedtohisprofessionalactivitycanbeinvol vedintraining.

Thepracticalsignificanceoftheresearchliesinthefactthatmethodologicaldevelopments,monographs,p edagogicalsoftware,controltests,registrationofallpedagogicalactivitiesofateacherofinformaticsandin formationtechnologies(educationalprocess,spiritualandeducationalwork,circlework,groupleadershi p,etc.)havebeendeveloped.systemanditsimplementationinteachingpracticecontributestothepreparati onofqualifiedteachersforoursociety.

LiteratureSurvey

Theessenceoftheconceptofintegration,itsplaceinphilosophical,methodologicalandpracticalresearch, thevarietyofintegrationprocesses;integrationisthemovementoflargeintegratedsystems,theintegration ofknowledgeandskills,thegeneralizationofapurposefulindependentsystem,purposefulintegration,the unityandcommonalityofthelawsofnature,theleadingformoforganizingcontent,intogeneral,pedagogic alintegration,specificsituationsinpedagogy,variousformsofscientificintegrationinthefieldofpedagog icaltheoriesandpracticesthatrequireaction,explanation,forecastingandmanagementinaccordancewit htheproblemsofscience,integrativeapproachestoteachertraining,teachertrainingintheintegrationofpe dagogicalandinformationtechnologies,theircompetence,Methodsforassessingstudents'knowledgein anintegratedenvironmentDzhuraevT.[1,2].KayumovaN.[3,4],KlugJ.[5],KravchenyaE.M.[6],LiHon gqing[7],LutfillaevM.[8, 9],MagomedovR.M.[10],MandichD.[11],MuminovB.B.[12],MonakhovD.N.[13],MuslimovN.A.[1 4],SerdyukovaN.[15],SuropovB.M.,[16, 17],KhimmatalievD.O.[18],YakovlevI.P.[19],YuldashevI.A.[20]andothers.

Discussion

Asaresultoftheeffectiveintegrationofpedagogicalandinformationandcommunicationtechnologiesont hebasisofpedagogicalexperienceintotheeducationalprocess,ithasbeenestablishedthatfromintegrated

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pedagogicaltechnologiestoactivelearningtechnologies,projectlearningtechnologies,problem-modularlearningtechnologies,distancelearning.technologies.

Thefactthattheeducationalprocessisquiteaccuratelydevelopedfromascientificpointofviewintheenvironmentofinnovativepedagogicalintegrationandintegrationofinformationtechnologieshasledtoaguaranteedresult(sometimesatanexcellentlevel)inpractice.

Whenanalyzingthepossibilitiesofintegratingpedagogicaltechnologiesandinformationtechnologiesintoeducation,thefollowingpossibilitieswereidentified:

-rational,systematicorganizationofpedagogicalandstudentactivities;

-
modularpresentationofeducationalinformationandeffectiveinvolvementofemotionalperceptionandintelligenceintheacquisitionofknowledge;

-
Intheorganizationofanactiveeducationalprocess,theabilitytoquicklyandefficientlyclassifystudentsaccordingtotheirabilities,interests;

-
takeintoaccounttheindividualcharacteristicsofthestudentforagivengrouptask,theabilitytoseekcompletelynewknowledge,makeprofoundchangesintheeducationalprocess,achievesystemicthinking;

-
Thespecificityandsoftwarecapabilitiesofthecomputerareusedintheeducationalprocesstosupporttheproject,anactive,problematic,modularapproach,theorganizationofstudent-centeredlearning,theindividualizationoftraining,theactivationoftheeducationalprocess,aneffectiveinformationmanagementsystem;

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Intheeducationalprocess,pedagogicaltechnologiessupporttheintroductionofinformationtechnologiesand,conversely,pedagogicaltechnologiesofinformationtechnologies,etc.

Asaresultofteachingtheintegrationofpedagogicalandinformationtechnologies,thebasicrequirementsfor futureteachersofinformaticswereidentified.Theyare:

functionalanddidacticcapabilitiesofmoderncomputersandpedagogicaltechnologies,thedevelopmentofcomputerteachingaidsusingsoftware,theintroductionofelementsofpedagogicaltechnology,theuseoftheoreticalanddidacticrequirementsandprinciplesintheeducationalprocess,therequirementsofpedagogicaltechnologyande-
learningtoolsandclassificationmethodsthattakeintoaccountpedagogicalandergonomicrequirementsfororganizinglessons,theneedtoknowthepossibilitiesofautomatingtheeducationalprocessusingpedagogicalandinformationtechnologies,etc.,aswellasplanningandorganizinglessonsusingpedagogicalandinformationtechnologies,preparingacomputerclassforclasses,beingabletocreatepresentationmaterials,using2-
4interactivemethodinaccordancewiththepurposeofthelesson,electroniclearningresourcesbasedoninf

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ormationtechnology;developmentofe-learningtools,applicationofexistingelementsofpedagogicaltechnologyinaccordancewiththetaughtsubject,theneedtohaveexperienceinmakingcreativechangesifnecessary.

Anin-depthanalysisofanumberofstudiesonthetrainingofinformaticsteachersshowedthatteachertrainingintheintegrationofpedagogyandICTisclearlydividedinto"theoretical","technological"and"practical"modules.

Thetrainingofinformaticsteachersinthe"Theoretical"moduleincludesanin-depthstudyofpedagogicalandICTlaws,basicconcepts,algorithms,aswellasknowledgeofpedagogicaltechnologiesandICTinthestudyofspecialtysubjects,inthe"Technological"moduleITpresentstheiruse,implementation,integration,allknowledge,skillsandabilitiesinpedagogicaldesign,andinthemodule"Practical"presentsthepracticalactivitiesofacomputerscienceteacherinthewholeprocessofwork.

Inthecourseofourresearch,wefoundthatthefollowingtrainingopportunitiesareavailableforinformaticsteachersinthefieldofpedagogyandICTintegration.Theseare:rationalorganizationoftheteacher'swork,changingthetraditionaldidacticprinciplesofteaching,keepingabreastofinnovationsinthisarea,continuouslearning,effectiveuseoftime,participationandvictoryinvariouscompetitions,projects,ensuringcommunicative(proactive)communication.withstudents,motivation,promotion,development,teacherself-esteem,correctingdeficienciesandachievingcareergrowth.

Theintegrationofpedagogicalandinformationtechnologiesintotheresearchprocessiseffectivewhentheinformatizationofeducationaltechnologiesisaimednotonlyatthecomputer,butalsoatitsentirepotential,themainemphasisisonmasteringthecontentofthesubjectduringtheinformatizationofeducationaltechnologies.-thisisthedevelopmentofthestudent'spersonality,thatis,inthedevelopmentandimplementationofasystemprojectfortheorganization,implementationandcorrectionofshortcomingsintheeducationalprocess.

Methodologicalsystemandorganizersofteachinginformatics:whendisclosingthepurpose,content,form,method,meansandcontrol,thefeaturesofthemethodologicalsystemofteachertrainingaredetermined.Theseare:theabilitytosetthecorrectgoal,thechoiceofcontent,thegoalsoftheeducationalprocess,designonascientificbasisusingmethodsandmeans,takingintoaccounttheselectedcontent,teachingmethods,theunityofthetheoretical,technologicalandpracticalpreparationofstudentsforeachothertoachievecompleteness,tocreateopportunitiesforrapidassimilationofeducationalandmethodologicalmaterialsofincreasedcomplexity,forthecompleteequippingoftheeducationalprocesswithmodernpedagogicalandinformationtechnologiesandtheuseoftheirintegrationenvironment,fortheorganizationoftheeducationalprocess.harmoniousandcomprehensivetraininginvarioussubjects,formingcoverage.

Thecreationofamethodologicalsystemofateacherofinformaticsintheenvironmentofintegrationofpedagogicalandinformationtechnologiescontributestotheimprovementofthemethodologicalsystemduringpedagogicalpractice,diagnosticsandself-diagnosisofimportantqualitiesofateacherofinformatics.

Itisknownthataneducationalprojectisaclearplan,thedevelopmentofthecontentofpedagogicalactivityonthebasisofasetgoal,theproductofeffortstoensureitsresults.anddesignisapracticalefforttodevelopthec

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ontentofanactivityorprocessbypredicting,predictingandplanningtheexpectedresultbasedoninputdata
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Asaresultofthestudy,itwasfoundthatachangeinoneorseveralelementsinthemethodologicalsystemofa nyeducationleadstoachangeinotherelements,avoluntarymethodologicalsystemisassociatedwithaspe cificactivityinwhichgoalsettingbasedonsocialneedstakesaleadingposition.

Todevelopamethodologicalsystem,agoalisset,thecontentisdetermined,ideasareputforward,activities areplanned,pedagogicalandinformationtechnologiesaredeterminedusingtheprinciplesofsorting,sorti ngandselection,thepedagogicalprocessiscarriedout,evaluatedandevaluated.theresultsareanalyzed.T hewaysofcorrectingshortcomings(corrections)areidentifiedandfurtheractionsareplanned.

Researchstudiesoneducationaldesignwerestudied,andamethodologicalsystemwasdevelopedatthedes ignstages:preparation(research),preparationofaproject(design),implementationorimplementationof aproject,conclusionandconclusionandrecommendations.Atthesestages,thedesignofclassroomandext racurricularactivitiesasamethodologicalsystemorganizingtheactivitiesofateacherofinformaticswasd emonstrated.

Practicehasshownthatintheclassroominthespecialty,whentheteacherformsamethodologicalsystemin themindsofstudents,itsconstituentelements,teachestoformeachtopicasamethodologicalsystem,thestu dentdevelopsareflexiveapproachtocreatingamethodologicalsystem.Asaresult,thestudentunderstands themethodologicalsystemusingtheexampleofasubject,science,awholedirection.

Whendevelopingamethodologicalsystemfortrainingteachersofinformaticsinthefieldofintegratingpe dagogicalandinformationtechnologies,itisnecessarytoanalyzethecontentandstructureofthecurriculu m,clearlyformulatetherequirementsfortheorganizationoftheeducationalprocess,toachieveandimprov ethedesignoftheformofteaching,content,method,toolandresults.

Toimprovethecontentofthemethodologicalsystemfortrainingteachersofinformaticsintheintegrationo fpedagogicalandinformationtechnologies:modeling,designandteachingofsubjectsandeventsasameth odologicalsystem,theformationofskillsintheuseofpedagogicaltechnologies,methods,meansandinfor mation.technologiesinteachinginformatics,projectteachingininformatics,theformationoftheorganiza tionoftheeducationalprocessonthebasisofactive,metasubjectapproaches,teachingtheuseofpedagogic alsoftware,electroniceducationalresources,theformationofpsychologicalandpsychologicalpedagogi cal,theoretical,practicalandtechnologicaltraining,skillsofindependentworkinmethodologicaltraining informaticsteachers.

Toimprovethemethodsofthemethodologicalsystem,studentsshouldbetaught:pedagogicalandinforma tiontechnologiesinteachingcomputerscience,theuseofopportunitiesfortheirintegration,thechoiceand applicationofinteractivemethodsusingtheprinciplesofanalysisandselection,innovationsinteaching.an dtheuseofinnovativemethodsinteachingcomputerscience.

Inordertoimprovethetoolsofthemethodologicalsystem,itisnecessarytoprepareattention-grabbingslides,animations,visualaids,tocreateanduseintheeducationalprocesspedagogicalprograms, pedagogicalandinformationtechnologies,theirintegrationintoaconditionedreflex,thegoalofimprove mentControlinthemethodologicalsystemwasconsiderednecessaryforcomparisonandachievementthe

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irequalstrength,self-
assessmentandassessmentofstudents,developmentofcontrolcriteria,implementationinpractice,toachieveafairassessmentoftheirownactivitiesandstudents.

Intheintegrationofpedagogicalandtechnicalknowledgeinimprovingthetrainingoffutureteachersofinformatics,thepossibilitiesofpedagogicaldisciplines"Methodsofteachinginformatics","Technologyanddesignofinformatics","Pedagogicalsoftwareandtechnologies"werehighlighted.Toteachthesesubjects,educational,methodologicalandpedagogicalsoftwaretoolshavebeendeveloped.Promisingteacherspointedouttheproblemsassociatedwiththeinabilitytocorrectlysetgoalsandobjectiveswhencreatingpedagogicalsoftware,lackofunderstandingofpedagogical,psychological,ergonomicandmethodologicalrequirements,inabilitytocorrectlypresentthemainparts,aswellasdesignsolutions.Forexample,usingMacromediaFlash8,AutoPlayMediaStudio8,MovaviVideoEditorPlus,Bandicam,Audacity,TurboSite,Ispring,HotePotatoeandothercomputersoftware,thepedagogicalsoftwaretool“TeachingSoftwareCreationTechnology”wascreated.

Asdirectionsfortheimplementationoftheimprovementofthemethodologicalsystemoftraininginformaticsteachersinthefieldofintegrationofpedagogicalandinformationtechnologies,weorganizetheteachingofspecialtysubjectsinpracticalandlaboratoryclassestogetherwithstudents,directingstudentstoprojectwork,aswellas3-
4yearsofpedagogicalpractice.itisadvisabletointegratetheuseofpedagogicalandinformationtechnologiesinthedevelopmentoflessonplans,technologicalmaps,integratethemintotheactivitiesofstudentsandtherebydevelopthepro fessionalcompetenciesofstudentsinordertoimprovethemethodologicalsystem.

Improvingthemethodologicalsystemofpedagogicalpracticebeginswiththestateeducationalstandard(SES)andstaterequirements.ThegoalofimplementingDTSrequiresthecreationofapedagogicalsystem.Theprocessofimplementingeducationisbasedonlawsandprinciples.Overtime,acomputerscienceteacherbeginstodesignhispedagogicalactivity,andthisprocessleadstocontinuity,theemergenceofamethodologicalteachingsystemandfullunderstandingonthepartoftheteacher.Onlythenwillteacherreceivehisorherinitialprofessionalcompetence.

Overtime,acomputerscienceteachercarriesouttargetedtraining,thetasksofthemethodologicaltrainingsystem,thedesignoflessonsintheprocessofeducationalactivities,thedevelopmentofvariousdesignmodels,theorganizationoftrainingingeneral,itspurpose,content,form.,method,toolsandresults.andunderstandsthatthiscanbedonetogetherwithstudents.Itisinthisprocessthatheacquiresbasicprofessionalcompetence.

Overtime,theteachercreateshisownmethodologicalsystem,understandsthecontinuityofconnectionsbetweenthesemethodologicalsystems,designshisactivities.Thatis,hequicklyandeasilyunderstandswhichpedagogicaltechnologies,whichinformationtechnologiescanbeusedtoachievethehighestresults.Asaresult,theybegintodeveloptheirprofessionalcompetenceandachievespecialprofessionalcompetence,applytheirspecialprofessionalcompetenceinpractice,furtherdevelopitandachievepedagogicalskills,whichisthehighestpointofpedagogy.

Results

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Organizationofexperimentalworkonthebasisofthetheoreticalfoundationsoftheintegrationofpedagogical andtechnicalknowledgeinimprovingthesystemofprofessionaltrainingoffutureteachersofinformatics,inparticularstudentsstudyinginhighereducationalinstitutionsinthefieldofteachingmethodsofinformatics.specialattentionhasbeenpaid.

Themainpurposeoforganizingexperimentalworkistodeterminethelevelofeffectiveuseoftheproposed pedagogicalconditions,whichwillallowthemtoprepareforprofessionalandpedagogicalactivitiestoimprovethesystemoftrainingfutureinformaticsteachersbasedonintegration.pedagogicalandtechnicalknowledge.

Experimentalworkwascarriedoutin2015-2018.DirectionsGulistanStateUniversity,BukharaStateUniversity,FerganaStateUniversity,KarshiStateUniversity"MethodsofTeachingInformatics".

Inthecourseoftheexperiments,thepossibilitiesofimprovingthesystemoftrainingteachersofinformatics basedontheintegrationofpedagogicalandtechnicalknowledgewereidentified,anditsqualitativedevelopmentandeffectivenesswereconfirmedinpracticeonthebasisofscientificassumptions.Accordingtothe resultsoftheexperimentalwork,thepreparationoffutureteachersofinformaticsforprofessionalandpedagogicalactivities:pedagogicalandtechnicalknowledge,theirintegration,preparationfordesign,research,innovativeactivities,theabilitytocreatepedagogicalprogramstoimprovethelearningsystem.teachers ofinformatics(mobility),partlyresearch,variable:cognitive,motivational-axiological,practical)criteriaweredevelopedandappliedinpractice.Generalandstatisticalanalysisofth eresultsofexperimentstoimprovetheperformanceofstudentsthroughthemethodologyoforganizinglessonsbasedontheintegrationofpedagogicalandtechnicalknowledgeinthedesignandimplementationofpedagogicalactivities(classroomandextracurricular),thecreationanddevelopmentofitsownmethodological system.

Theresultsobtainedateachstageoftheexperimentalworkweresystematicallyanalyzed.Intheexperiment algroupfortwoyears,339studentsfrom6groupstookpart,andinthecontrolgroupfortwoyears-325studentsfrom6groups.Inthesecondhalfoftheacademicyear,thesegroupscarriedoutworktoassessth eprojectactivitiesofstudentsinpracticalandlaboratoryclassesonthesubject"MethodsofTeachingInformatics".Whendeterminingtheeffectivenessofthestudy,thelevelofassimilationbystudentsoftheassignmentwasstudiedonthebasisofqualitativecriteriaofassimilationandtheStudent'scriterionwasused.

Astatisticalanalysisofeighthands-on,eightlaboratorysessionsduringthestudywaspresented.Asaresultoftheanalysis,itcanbeseenthattheassimilationefficiencysuddenlybecomeslarge($\bar{e}$=1.13>1).Itturnedoutthattheeffectivenessoftheexperimentalgroupswashigherthanthatofthecontrolgroups,andtheresultsincreasedby1.13%.

Conclusion

Inourcountry,acertainexperiencehasbeenaccumulatedinthetrainingofteacherswhomeettherequirements ofthetimeamongdevelopedcountries.However,themaintaskofthehighereducationsystemistoprepareteachersinthefieldofinformaticsinaccordancewithmodernrequirements,providethemwiththelatestachievementsinscienceandtechnology,thelatestknowledgeinthefieldofactivity,stimulateinnovation,andmakethemostnecessarydecisionsinnon-standardsituations.

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Tofulfillsucharesponsibletask,itisnecessaryintheprocessofteachingspecialsubjectsinthehighereducationsystemtosetagoalandworkwithallstrengthandzealtoachievethisgoal.Themainresultsoftheresearchworkandtheconclusionsdrawnontheirbasisareasfollows.

1.Thetechnical,didacticandpreparatoryproblemsintheprocessofcreatinganenvironmentfortheintegrationofpedagogicalandinformationtechnologiesinthetrainingoffutureteachersofinformaticsinhighereducationalinstitutionsareidentified,waystoovercometheseproblems,therole,opportunitiesareidentified,thepsychologicalandpedagogicalaspectsofthecreatedenvironmentareidentified.

2.Thelevelsofintegrationofpedagogicalandinformationtechnologieshavebeendetermined,thepossibilityofachievingahighlevelofintegrationasaresultoftheenrichmentofpedagogicalandinformationtechnologiesbyteachersandstudentshasbeensubstantiated.

3.Toachieveahighlevelofintegrationinteachinginformaticsteachers,studentswereshownthewaystoachieveresearchwork,design,professionalidentityandprofessionalcompetence.

4.Inordertoteachfutureteachersofinformaticstodesignamethodologicalsystemintheintegrationofpedagogicalandinformationtechnologies,amethodologyfordesigninganeducationalprocesswasdeveloped andimplementedinpractice:lessonplans,flowcharts,e-learningtools.

5.Intheprocessofintegratingpedagogicalandinformationtechnologies,methodsandcriteriafordiagnosinglearningoutcomesandself-assessment,aswellastheirpedagogicalactivities,weredevelopedandintroducedintoeducationalpracticeforfutureteachersofinformatics.

6.Criteriafortheformationofprofessionalandpedagogicalcompetenceofstudentsinpedagogicalpractice,whichistheresultoftrainingfutureteachersofinformatics,havebeendevelopedandintroducedintopractice,ithasbeenestablishedthattheydonotdevelopcommunicative,informational,spiritual,educational,introspection,researchanddesignskills.

7.Intheintegrationofpedagogicalandinformationtechnologies,amethodologicalsystemoffutureteachersofinformaticshasbeendeveloped,andasaresultofitsimplementationinpractice,theachievementoftheformationofprofessionalcompetenceofteachersofinformaticsisshown.

Webelievethatthefollowingrecommendationsshouldbefollowedtoimprovethetrainingoffutureteachersofinformaticsbasedonanintegratedapproachinthehighereducationsystem.

1.Moreattentionshouldbepaidtoteachingpedagogicalandinformationtechnologies,theirintegration,levelsofintegration,modelsoftraininginformaticsteachersinhighereducationalinstitutions.

2.Itisnecessarytoteachthefutureteacherofinformaticstoconstructpedagogicalactivityasamethodologicalsystemandtobringtheprojectactivitytothelevelofreflection,sothatheclearlyrepresentshisprofessionalactivityasanintegralsystem.

3.Atthepresentstageofdevelopmentofpedagogicalandinformationtechnologies,itisnecessarytoensuretheimprovementofthecurriculaofundergraduatestudentsinthedirectionof"Methodsofteachinginformatics."

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4.Tostrengthencommunicationwithproduction,itisnecessarytointroducecontinuousteachingpracticef orteachersofinformatics,trainedintheintegrationofpedagogicalandinformationtechnologies.

5.Teachersofinformatics,trainedintheintegrationofpedagogicalandinformationtechnologies,shouldb etrainedtoorganizetheirpedagogicalactivity,identifyproblemsinit,conductresearchbysolvingproblem s.

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