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Title: Introduction of Educational Research

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Unit-I

Lesson No. 1

TITLE: INTRODUCTION TO EDUCATIONAL RESEARCH

STRUCTURE

1.1 Introduction

Researchisdevotedtofindtheconditionsunderwhichacertainphenomenon occursandthoseunderwhichitdoesnotoccur.Theterm"research"consistsoftwo words'Re'and'Search'.'Re'means againand again Search meanstofind outsomething new.Thus,researchisaprocess ofwhich apersonobserves thephenomenonagain and againcollectsthedataandhedrawsomeconclusionsonthebasisofdata.

Researchisanobjective,impartial,empirical andlogical analysis andrecording of controlledobservations that may leadtothedevelopment ofgeneralizations, principles or theories, resulting, to some extent in prediction and control of events that may be consequencesorcausesofspecificphenomenon.Researchisscientificandassuchisnot satisfiedwith isolatedfacts,butseekstointegrateandsystematizeits findings.Itisconcerned withtheobjectiveverificationofgeneralizations.Suchverificationrequireslogicalanalyses ofproblemsanddevisingofappropriatemythological forobtainingevidence.

Thereisnoanyuniversaldefinitionofresearch.Tomakeideaofresearchver y clearenough,followingdefinitionsareincluded herewith.Theseare:

JohnW. Best."Research may be definedasthe systematic and objective analysis andrecording ofcontrolledobservations that may leadtothedevelopmentofgeneralizations, principlesortheories,resultinginpredictionand possible ultimate controlofevents."

W.S. Monroe."Researchmaybedefined asamethod ofstudying problems whose solutionsaretobe desiredpartlyorwholly fromfacts. Thefactsdealt within research may beofoptions,historicalfacts,thosecontainedinrecords andreports,theresultsoftests, answerstoquestionnaires,experimentaldataofanysort,andsoforth"

Kerlinger."Scientific researchissystematic, controlled,empirical and critical investigationofhypothetical propositions aboutthepresumed relationsamong natural phenomena."

P.M. Cook"Researchisanhonest,exhaustive,intelligentsearchingforfactsand their meaning orimplicationswithreferencetoagiven problems."

RobertRoss."Research isessentially aninvestigation,arecording andananalysisof evidenceforthepurposeofgainingknowledge."

Young."Researchisascientificundertaking which, by means of logical andsystematic techniquesaimsto:(1)discovernewfactsorverifyandtestoldfacts,(2)analysestheir sequences,interrelationshipsandcasualexplanations,(3)developnewscientificto ols, conceptsandtheorieswhichwouldfacilitatereliableandvalidstudyof humanbehavior"

Fromtheabovedefinitions,wecansaythatresearchisanactofsystematic , critical and scientific investigationof materials and sources in order to establish facts and reachnewconclusions.These investigationsareincreasingthestreamof knowledge.At last,researchesmeansinvestigationsconsistingofdeterminationandsearch something whichmaysatisfythecuriosity oftheinvestigator

1.2 Learning Objectives:

Afterreadingthislesson,youshallbeableto:

- ToexplaintheconceptofEducationalResearch
- Formulateone'sownmeaningofeducationalresearch
- Understandthenatureofeducationalresearch

- Todescribethescopeof EducationalResearch

1.3 MeaningOfEducationalResearch:

Educationalresearch is a fieldof study that focuses on the investigationofeducational phenomena, processes, andpracticestoimproveeducational outcomes. Itinvolves systematicinquiry,usingvariousresearchmethods,togatherdataandevidencethatca n informeducationalpolicy,theory,andpractice.

Educationalresearchcancoverawiderangeoftopics,includingteachingandlearni ng strategies, curriculum design, student motivation, assessment and evaluation, educational technology, andteacher professional development.

Researchers inthisfield mayusequalitative orquantitative research methods, ora combinationof both,to gatherand analyzedata. The ultimategoal of educationalresearch istoimprovethequality ofeducationand enhance studentlearning outcomes by generating newknowledgeandevidence-basedrecommendationsforpolicyandpractice.

Definitions:

EducationalResearchasnothingbutcleansingofeducationalprocess.Manyexperts thinkEducationalResearch asunder:

AccordingtoMouly,EducationalResearchisthesystematicapplicationofscientificmet hod forsolvingeducationalproblem.

AccordingtoTravers,EducationalResearchistheactivityfordevelopingscienceof behaviorineducationalsituations.Itallowstheeducatortoachievehisgoalseffectively. According to **Whitney,** Educational Researchaimsatfinding outsolution ofeducational problems by using scientific philosophical method.

AccordingtoMunroe,"Thefinalpurposeofeducationalresearchistoascertain principles and develop proceduresforuseinthefield ofeducation."

AccordingtoGood"Educational researchisthestudyandinvestigationinthefieldof education."

According to Mulay"Anysystematicstudydesignedto promotethedevelopment of education asascience canbeconsidered educational research."

Crawford'sdefinitionofeducationalresearchis"Educationalresearchisasyste maticand refinedtechniqueof thinking,usingspecialtoolsinordertoobtainamereadequatesolution of a problem."

J. W. Best says, "Educational research is that activity which is directed towards developmentofascience of behavior

ineducationalsituations. Theultimate aimofsucha scienceistoprovideknowledgethatwillpermittheeducatortoachievehisgo alsbythe most effective methods."

Thus,EducationalResearchistosolveeducationalprobleminsystematicand scientific
manner,itistounderstand,explain,predictandcontrolhumanbehaviour.

1.4 NatureofEducationalResearch:

Thefollowing characteristicsare related inthat, asawhole, theydescribe the nature ofresearch:

1. Researchisempirical;
2. Researchissystematic;
3. Researchshouldbe valid;
4. Researchshouldbereliable;
5. Researchcantakeonavarietyofforms.

McMillanandSchumacher(1989)defineresearchas"asystematic process forcollectingandanalyzinginformation(data)forsomepurpose."

Kerlinger definesscientific research as"systematic, controlled, empirical and critical investigation ofnatural phenomena guided bytheory and hypotheses aboutthe presumed relationsamongsuchphenomena."

1. ResearchisEmpirical:ScientificMethod:

Empiricism isthe concept that allknowledge isderived from asenseexperience; this experience resultsinsomeinformationform-data-sothatknowledge canbegenerated upon it. Researchers work upon data; this may involve organizing them, generating hypotheses, testing themand so on.

2. SystematicProcessofResearch:

1. **Identifyingaproblem:** Thenature oftheproblemistobedefined;related knowledge isidentifiedandaframework to conducttheresearchisestablished. Inaddition, necessary assumptions and conditions are also identified.
2. **Reviewinformation:**Theresearcherreviewshowothersapproachedasimilar problem;

i.e.Literaturereview.

Scientific Method: research processisconsidered to consist ofaseriesofsequential steps. Scientific Inquiry: search for knowledge through recognized methods of data collection,

analysisandinterpretation.

Tomakeresearchsystematic,researchersusetheapproachofscientificinquiry andscientific method.

Data collection: Collecting data requires a proper organization and control to validatethedata to make decisions upon them.

Dataanalysis:Dataanalysismustbedoneinamanner appropriatetotheproblem.

Drawing conclusions: Fallowing dataanalysis, researchers drawconclusions and make generalizationsbased onthe datathey had collected.

3. TheValidityofEducationalResearch:

Researchesmustbebasedonfacts;i.e.capable tobejustified.Therearetwoconcepts: Internalvalidityisaprerequisite forexternalvalidity because iftheresultscannot be interpretedaccuratelywithconfidence,researcherscannotgeneralizethem.

External Validity:theextenttowhichresearchresultscanbegeneralized.

1.5 Check Your Progress-I

1. What is educational research?
2. State any two objectives of educational research?
3. What is the main purpose of conducting educational research?
4. What is the nature of educational research?

1.6 Scopeof Educational Research:

NameofEducationalResearchchangeswiththegradualdevelopmentoccurs withrespecttoknowledge and technology,soEducationalResearchneedstoextend its horizon.Being scientific studyofeducationalprocess,itinvolves:individuals (Student, teachers,educationalmanagers, parents.)institutions(Schools,colleges,research-institutes) discoversfactsandrelationshipinordertomakeeducationalprocessmoreeffective.It relatessocial scienceslikeeducation.Itincludesprocess likeinvestigation, planning(design) collecting data, processing ofdata, their analysis,interpretationand drawing inferences. It coversareasfromformaleducation and non-formaleducation aswell.

Herearesomeofthekeyareasof inquirywithineducationresearch:

- **Curriculum development and evaluation:** Education research inthis area focusesonthedesign,development,andevaluationofeducational programs, curricula,andinstructionalmaterials.Researchersexploreissuessuchascurriculum alignmentwithstandards,assessmentofstudent learning, andeffectivenessof instructionalmaterials.
- **Teachereducationandprofessionaldevelopment:**Educationresearchinthis areaexamines thepreparation, training,and ongoing professional developmentof teachers.Researchersmayexploreissuessuchastheeffectivenessofteacher education programs, the impact of professional development on teacher effectiveness,andtheuseoftechnologyinteachereducation.
- **Studentlearningandachievement:**Education researchinthisareafocuses on understandinghowstudentslearn and whatfactors contributetotheir academic success.Researchersmayinvestigateissuessuchasstudentmotivation,learning styles, andtheimpact oftheclassroom environmentand instructional practices on studentlearning.
- **Educationalpoliciesand governance:**Educationresearch inthisareaexamines the policies, regulations,and governancestructures that shape education systems. Researchers may explore issues such as funding and resource allocation, accountability andassessment,andtheroleofstakeholdersindecision-making.
- **Education technology and digital learning:** Education research in this area examinestheuseoftechnologyin education,includingonlineandblended learning, educationalsoftwareandgames,anddigitaltoolsforinstructionandassessment.
- **Special education and inclusive education:** Education research in this area focusesonunderstandingtheneedsofstudents withdisabilitiesanddeveloping effectivestrategiestosupporttheirlearning.Researchersmayinvestigate issues suchas inclusivepractices,assistivetechnology,andtheimpactofspecialeducation programsonstudentoutcomes.
- **Assessment and evaluation ofeducational programs:** Education research in thisareaexaminestheeffectivenessofeducationalprogramsand interventions, usingarangeofassessmentandevaluationmethods.Researchersmayexplore issuessuchasprogram design, implementation,and impactonstudent

learning.

- **Educationalpsychologyandmotivation:**Educationresearchinthisarea focuses onthepsychologicalprocessesinvolvedinteachingandlearning,including motivation,cognition,andbehavior.Researchersmayinvestigateissuessuchas studentengagement,self-regulation,andtheimpact ofdifferentteaching strategies onstudentmotivation.
- **Educational leadership and management:** Education research in this area examines therole of leaders in shaping educationalpolicy and practice, including issuessuchasschoolgovernance,leadershipstyles,andtheimpactof leadership onschoolcultureandstudentoutcomes.
- **Adulteducation andlifelonglearning:**Thisareafocusesonunderstandingtheneedsofadultlearners.Developingeffectivestrategies tosupporttheir ongoing educationandprofessionaldevelopment.

  Overall, the scope of education research is diverse and constantly evolving, reflectingthecomplexanddynamicnatureofeducationsystemsandthediverseneeds of learners. Education research plays a critical role ininforming policy and practice, supportingtheongoingimprovementofeducationsystems. Italsoensurethat alllearners haveaccesstohigh-quality educational opportunities.

1.7 CheckYourProgress-Ii

1. Whatisresearch?Discussmaincharacteristicsofresearch.
2. Whatiseducationalresearch?Discussitsscope.
3. Discussnatureofeducationalresearch?
4. Writebrieflyaboutinterdisciplinaryresearch

1.8 LetUsSumUp

Educationalresearchisascientificandappliedformofstudyingaproblemora phenomenonusuallycarriedoutinnaturalsettingstosolveeducationalproblems.Educational researchfounditsutilityinalltheallieddisciplines ofeducation.That'swhyitisbothinter disciplinaryaswellasmulti-disciplinaryinnature.Thereareafewstepsineducational research, whicha researcher issupposed to followwhileconducting research. Thescope ofeducationalresearch isveryvast. Research isbroadly classified based

onthe purpose- fundamental, applied, and action research. Further, educational research can also be categorizedbasedonthetypesofdatacollected.Ifthenatureofdatacollected fromthe fieldisquantifiable or isinnumerical form, analysisisdonethrough statistical measures, then researchisquantitative.Ifthedata collected isintheform oftexts, pictures, images, videos, etc. and these areanalyzed through athick description ofwords, and thenthe researchiscalledqualitativedata.Inotherwords,research iseitherqualitativeorquantitative mainlydependinguponthenatureoftheproblemandquestionsraisedbythe problem.

1.9 Keywords /Glossary

Reliability – The consistency and repeatability of research findings
Problem-Solving – Finding effective solutions to educational issues through research.
Knowledge Generation – Creation or expansion of educational theories and practices.
Curriculum Development – Design and evaluation of learning content and materials.
Scientific Method – A step-by-step process used in research including problem identification, data collection, analysis, and conclusion.

1.10 Lesson End Exercise

1. Whatdoyouunderstandabouteducationalresearch?
2. Enlistthreekeycharacteristicsofeducationalresearch.
3. Whatistheaimof EducationalResearch?
4. Whatthekeyareasof inquirywithineducationresearch?
5. WhichapproachisadoptedinEducationalResearch?

11.11SuggestedReadings

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LessonNo.2

Unit-I

TITLE:NEEDANDPURPOSE

STRUCTURE

2.1 Introduction

Educational researchiscollectingandsystematically

analyzinginformationon educationmethodstoexplainthembetter.Itshouldbeviewedasacritical,reflexive, and professionalactivitythat adopts rigorous methodstogather data, analyzeit, and solve educational challenges to help advance knowledge.Educational research typically begins withidentifying a problem or anacademic issue. Fromthere, it involves theresearch ofall thedata,theinformationmustbeanalyzedtointerpretit.Thisprocessendswithareport whereresultsarepresentedinanunderstandableformofspeech,whichcanbeusedby boththeresearcherandtheeducationalcommunity. The primarypurpose ofeducationalresearchisto expand the existing body of knowledge byprovidingsolutionstodifferentproblemsinpedagogywhileimproving teachingand learningpractices.Educationalresearchersalso seekanswers toquestions botheringon learnermotivation,development,andclassroommanagement.

2.2 Learning Objectives:

Afterreadingthislesson,youshallbeableto:

- formulateone'sownmeaningofeducationalresearch,
- describetheneedforresearchineducation,
- tostatethepurposeofeducationalresearch.

2.3 NeedForResearchInEducation

Researchineducationasinotherfieldsisessentialforprovidingusefulan d dependableknowledgethroughwhichtheprocessofeducation canbemademoreeffective. Therearevariousconsiderationswhich emphasize theneedforeducation.

1. Educationhasstrongrootsinthefieldlikephilosophy,psychologyandsociologyIti s howeverbasedonaconceptualframeoftheory.Itisthroughanintensiveprocesso f scientific enquiry about the philosophical,historical,economic,psychologicaland sociological impactonvariousaspectsofeducationthatsoundtheoriescanbeestablished.

2. Thereisneedforeducationalresearch because ofthechangingconception ofeducation. Theinternationalcommissiononthedevelopmentofeducationinitsreport"Learningto Be" (Unesco,1972,p.l43)emphasizes:

Education from nowoncan nolongerbedefinedin relation toafixedcontent which hasto beassimilated,butmustbeconceivedofasaprocessinthehumanbeing,whothereby

learntoexpresshimself,tocommunicateandtoquestiontheworld,throughhisvarious experiences,and increasingly allthetimetofulfill himselfIt hasstrong roots,not only ineconomicsandsociology,butalsoinfindingsfrompsychologicalresearchwhichindica te thatmanisanunfinishedbeingandcanonlyfulfillhimselfthrough constantlearning.Ifthis isso,theneducationtakesplaceatallagesof life,inallsituationsandcircumstancesof existence.Itreturnstoitstruenature,whichistobetotalandlifelong,andtranscendsthe limitsof institutions,programmesandmethodsimposedonitdownthecenturies. Inthecontextofabovenatureofeducation,thelimitsofeducationalresearchhavetobe extendedfromtheformaland conventionalmodesofeducationtothenon-formal and innovativesystemsbasedonecological andcybernetic models.

3. Duringthelasttwodecades.Greatchangeshavetakenplaceasaresultoftherapi d scientificandtechnologicaldevelopments.Educationhastoplay animp rolesothat we canacceptthechangeinasmoothway.Itcandosobybringingimprovements inthe existingcurriculum,textbooks,methodsofteachingandevaluation.

4. Educationisconsideredasmuchasscienceasanart.Asascience,ithasacorpusof knowledgeconcerning thenature of human mind, itsgrowth and development;theories of administrationandsupervision;educationalprogrammesandpracticesprevalentindiffe rent countries and their results.The quantumof knowledgeis indicatedbythe courses in education prescribedbyvariousorganizationsandinstitutionsforearningdegreesinthefielda nd alsobyresearchmaterialwhichisbeingproducedandcontinuouslyreportedindifferent educationalresearchjournals.Sinceeducationdependsonacorpusof knowledge,there isneedto addscientificknowledgetoitforimprovementandenrichment.Thiswillfacilitate makingadjustmentsineducationalprogramsaccordingly. Asan art, educationseeksto impart toimpart knowledge effectively.For example,"How the teacher can play effective roleintheclassroomandoutside?" isavitalquestionbeforeeducationists,andneeds carefulresearcheffortstoenhanceteacher'seffectiveness.

5. Thesloganofdemocratizationofeducationsince 1870resultedintheexpansionof education.Ithasgivenrisetonumerousproblemslikeproblemsof individualdifferences expansion,buildings,discipline and soon. Solutions ofsuch problems bytrialand error by experience fromtradition and authority oftenyield erroneous results. Moreover growth by experienceisveryslowandaccidental.Weneedsolutions basedon research sothatthe cominggeneration is not left tothe mercy oferrors ofoutrightsins oftradition,ignorance and prejudice.

2.4 Check Your Progress 1

1. What is the primary objective of educational research?
2. What role does research play in educational policy making?
3. Define one key objective of action research in education.
4. Why is research important for curriculum development?

2.5 Purposeof Educational Research

Research isapurposefulactivity that iscarriedout by thescientific communityas theneedhasbeenfeltbythemtoseektheanswersandsolutionstotheexistingproblems facedbymankind.Weashumanswill never befreefromproblems,thequest forinquiry continuesandsoisthecasewithknowledgecreationandvalidation.Thereforeitcanbe saidthatresearchservesvariouspurposes,asgivenbelow:

Progressand good life: The purposeofresearchisprogress andgood life. Good education hasbeenrecognizedasthebasisofindividualandsocialdevelopment.Therefore, the needofresearchineducationalpracticesandpoliciesisbeingrealizedincreasing ly. Educationistsareconstantlysearchingformore effective methodsof instruction.Efforts arebeingmadetofindoutmoresatisfactorytechniquesofevaluation,richerlearnin g materials,betterphysicalfacilities,moreefficientsystemofadministrativeorganizati on, andsoon.Thissearchisbecomingmoreimportantduetotheveryrapid expansionand democratizationofeducationduringthelastfewdecades.Accordingtothe article26(I) of theuniversaldeclarationof Humanrights,"Everyonehastherightofeducation.Education shall befreeatleast intheelementaryand fundamentalstages. Elementaryeducationshall becompulsory.TechnicalandProfessionaleducationshall bemadegenerally available andhighereducation shallbeequallyaccessibletoallonthebasisofmerit."

Torealizethisgoal,thenationsoftheworldwillhavegreatlytoexpandthiseducational effort,morefacilities must beprovided,moreteachers must betrained, newcurricula must bedeveloped;andnewteachingmaterialmustbeprovided.Itisconceivablethatthiscan bedoneatall,without detailed guidancefromthefactscollected andtheprinciples establishedthrougheducationalresearch.

System: Defining research J.WBest, "Research isconsidered tobe more formal, systematic,intensive processofcarryingonthescientific method

ofanalysis.Itinvolves a more systematicstructure of investigation, usually resulting in some sort offormalrecordofproceduresandareport ofresultsorconclusions."

Economy: Decisionsbasedonsystematicresearchineducationsavetime,energyand a lot offailure and frustration. These show usthe path ofprogress. According tothe InternationalBureau of Education,"Inmany of itsrecommendations,theinternational conferenceonpubliceducationhasstressedtheneedforpsycho-educationalknowledge ofthechildasthestarting point foranyeducationalactivity.It hasalso shown that research formed anindispensiblebasisfor any national organizationofthe education especiallyas regardcurriculasyllabuses and methodsaswellasforfinancingeducation, foritsplanning, andforthebuildingofschools"

Problemsolving:

Researchisanactivitywhosemainpurposeistosolvetheexisting problemsrelatedtoeducation.Theseproblemsmaybefacedbystudentsorteachers or schoolleadersorparentsoranyotherstakeholdersoraneducationalinstitutionor a communityoranationatlarge.Ineducation,theymaythebestmethodofteaching a language?Howcanscientificcreativity befostered among children? etc.allthese problems involve relatively more effective ways ofpromoting learning and development. Ineach of theproblems,theresearcher'smainobjectiveistobindoutthesolutionssothatthesame canbeappliedbytheotherstosolvetheireducationalproblems.Forexample ifresearcher didexperimentalresearch,usemultimediaorICTtoteachaparticularsubjectandg et betterresultsthanwecangeneralizethatuseofmultimedia/ ICT helpsinfacingdifficulty in teachingaspecificsubjecttoaclassroomandtheteacherasaresearcher findsoutthe solution,thensimilarsolutionscouldbeappliedbyotherteacherstosolvetheclassroo m teachingproblems.

GenerationofKnowledge: Researchhelpsusverifyexistingknowledgeandifnecess ary, generatenewknowledge.Forexample,varioustheories of earningexplain howhuman beingslearns,Behaviorist theoryof learningexplains howhabitscanbeformed, information -processing theoryexplainshowwe processvarioustypesofsensation,howwemake meaningofthemandwhatroleourmemory plays,howwestoreinformationandhow memoryisorganized.Researchthatleadstogenerationofknowledgeisthereforeve ry carefullyplanned and conducted in controlled situations,such research isconcerned with theorybuildingand asknown asbasicresearch,alsocalledfundamentalresearch.

Actioninspecificsituation: Educationalresearchalsodemands notonlyfinding outthe solution ofthe problem but also expects the solutions should immediately be applied.But applyingthesolution, Researchersshould keep inmind thecontent specificity of thesolution. Whatdoyoumeanbycontextspecificity?Researchersmustbearinmindthatthenature oftheproblemsmaybethesamebutsolutionsmaynotbereplicableintotality,therefore oneshouldlookintosituationsandfindout thedifferences,and these differencesinthe situationsdemandspecificactions/solution.

Training for future researchers: Another main purpose of research is to provide knowledgeandskillstobuildthecapabilitiesofyoung researcher.Aswealreadyknow researchisanactivitythatisnotonlyscientificbutalsorequiresaninquisitivemind,scientific temperament,criticalthinkingabilityandmostimportantlycarried outinasystematic and organized manner, So personnel to researcher must be trained in these areas before becomingaresearcher.So,goodsocialscientistsalwaystraintheiryoungresearchers on the above-mentioned aspects.

2.6 CheckYourProgress II

1. Whydoyouwanttodoresearch?Giveanytworeasons.

2. Whataretheneedsofeducationalresearch?

2.7 Let Us Sum Up

Educational research improves teaching and learning through systematicinquiry.
It identifies problems, collects data, analyzes results, and shares findings.
It's needed due to changing education systems, new technologies, and diverse learner needs.
It helps in problem-solving, knowledge generation, better policies, and curriculum development.
It also trains future researchers and supports evidence-based decisions in education.

2.7 Keywords/Glossary

Systematic Inquiry

A structured and organized method of investigating educational questions or problems using clearly defined procedures and steps, such as identifying a problem, collecting data, analyzing results, and drawing conclusions.

Problem Solving: The process of identifying specific issues within educational settings and using research methods to find effective and practical solutions that improve learning and teaching outcomes.

Curriculum Development: The systematic planning, organization, and revision of educational content, learning experiences, and

instructional strategies to improve student learning, based on research findings and societal needs.

Evidence Based Decisions: Making informed choices in education based on reliable data, research outcomes, and proven practices rather than intuition, tradition, or assumptions, to ensure effectiveness and accountability.

2.8 LessonEndExercise

1. WhyResearchisImportant toStudents?
2. Whatarethefour4purposes ofresearch?
3. Whatispurposeofresearchineducation?
4. StatethepurposeofEducationResearch?

2.9 SuggestedReadings

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LessonNo.3

Unit-I

TITLE:AREAS OFEDUCATIONAL RESEARCH: PIDLOSOPIDCAL, PSYCHOLOGICAL AND SOCIOLOGICAL

STRUCTURE

3.1 Introduction: AreasofEducationalResearch

Educationasaprocesstakesintoaccountboththescienceofeducationandthe artofeducation.Thescienceofeducationcomprisesthecorpusofknowledge whichis largelyresponsibleformakingtheartofeducationmoreeffective. Theartofeducationhas relevancetoclass-room practices andforeffective dialoguebetweentheteacher andthe pupils.Sinceknowledgeisexpandingrapidlyinallthedisciplinesincludinge ducation, thereisneed toextend thefrontiers ofknowledge inareaswhich constitute thescience of education.

Consideringthispointofview, thefieldsofeducational researchcanbeclassified interms ofthefollowing content areas:

1. Psychologyof Education

2. Philosophyof Education
3. Sociologyof Education
4. EconomiesofEducation
5. Education ManagementandAdministration
6. ComparativeEducation
7. EducationalMeasurementandTestDevelopment
8. Curriculum,TextbooksandMethods
9. TeacherEducationandTeachingBehaviour
10. GuidanceandCouncelling
11. EducationalTechnology

3.2 Learning Objectives

Afterreadingthislesson,youshallbeableto:

- knowaboutdifferentareasofeducationalresearch
- explainthephilosophical,psychologicalandsociologicalareasof research

3.3 Philosophical Areaof Educational Research

Educationhasbeencalledthedynamicsideofphilosophyoranactive aspectof philosophic beliefits theoryand practice cannever attain perfection unlessitisbased on thesoundfootingofasystematic philosophy.

Thephilosophical areaofeducational researchdelvesintofundamental questions and issuesrelated to thenature, purpose, andmethods ofeducation. Itexplorestheunderlying philosophical assumptionsthatguideeducational practicesand policies. Herearekey themeswithinthephilosophicalareaofeducationalresearch:

Epistemologyin Education:

Investigatinghowknowledgeisacquired,justified, andtransmittedwithineducational settings.Thisinvolvesexamining differenttheoriesof learningandunderstanding.The curriculumalsoraisessomeimportant questionsofepistemology.Itisthestudent'savenue ofapproachtoknowledge.Itmakesusunderstandthenatureofknowledge.T henature ofknowledgehasaninfluenceonthewayinwhichthecurriculumisorganizedan dtaught. Italsohelpstodeterminetheshapeofteachinglearningstrategy.

EthicsinEducation:

Exploringmoralandethicalconsiderationsineducation, includingquestionsaboutthe responsibilitiesofeducators, ethical dilemmas inteaching,and themoral developmentof students.Ethicaldimensionshelpin formulatingthetheoryofeducation initsmostgeneral phases.Inexaminingtheaimsofeducation, themotivationof learning, orthemeasurement of its results, we are dealing with ethical problems, the problem of values. Ethical considerationsalsocomeupunavoidably inexamining thesocial or political setting ofthe educativeprocess. Valuesarealsoimportant considerationsinselectingwhichstudies should beincludedinthecurriculum.

Logic: Amongphilosophicaldimensions, logicaldimensionsrevealvarioussignificant roles whichlogiccanperformintheformulationofeducationalconcepts,generalizations and analogies,andindrawing outofeducationalinferences. Logiccanalsohelpincurriculum framing andit can provide thevery basis oftheteaching -learning process. Itistherefore neededtofindoutasto howmanypossiblelogicaloperationsareinvolved inteaching learning process.

SocialandPoliticalPhilosophyofEducation:

Analyzingtherelationshipbetweeneducationandsocietalstructures,including discussions on social justice, equality,and therole of education inshaping citizenship.

CriticalPedagogy:

Drawingoncriticaltheory,criticalpedagogyexploreshoweducationcanbeatool orsocialtransformationandliberation,challengingpower structuresandpromotingsocial justice.

ExistentialisminEducation:

Examining existentialist perspectives oneducation,which emphasize individual freedom, responsibility,andthesearchformeaningintheeducationalexperience.

PragmatismandEducation:

Exploring the pragmatic philosophy of education, which focuses on the practical consequencesofeducationalpracticesandtheapplicationof knowledgeinreal-world situations.

Postmodernismin Education:

Critically examiningpostmodern perspectives on education,which question grand narratives, challengeauthority,andemphasize

thediversityofperspectivesineducationalsettings.

FeministPhilosophyofEducation:

Analyzinghowgenderissuesintersectwitheducation,addressingquestionsofequality, representation,andtheroleofeducationinchallengingorperpetuatinggendernorms.

CulturalPhilosophyofEducation:

Investigatingtheinfluenceofculture oneducationalpractices,exploring howculturaldiversity isrecognizedandaddressedwithineducationalsettings.

EnvironmentalPhilosophyofEducation:

Examiningtherelationshipbetweeneducationandtheenvironment,considering how educational practices contribute toenvironmentalawareness,sustainability,and ecological responsibility.

AestheticandAestheticEducation:

Exploringtheroleofaestheticsandtheartsineducation,includingdiscussionsoncreativity, imagination,andthecultivation ofaestheticsensibilitiesinstudents.

Researchersinthephilosophicalareaofeducationalresearch often engageintheoretical inquiries,examining theconceptual foundations that underpin educationaltheories and practices.Theirworkcontributestoadeeperunderstandingofthephilosophicaldimensions ofeducationandinformsdiscussionsaboutthepurposeanddirectionofeducationalsystems.

3.4 Check Your Progress -I

1. What is the main objective of educational research?
2. List any two areas of educational research.
3. Differentiate between basic and applied educational research.
4. Why educationalresearch is important for teaching and learning?

3.5 Psychological AreasofEducationalResearch:

Thepsychologicalareaofeducationalresearchfocusesonunderstandingthecognitive, emotional,social,anddevelopmentalaspectsof learningandeducation.Researchersin thisfield explorevarious psychologicalphenomena toenhanceteaching methods, improve student outcomes, and contribute totheoverall effectivenessofeducational systems. Here arekeythemeswithinthepsychologicalareaofeducationalresearch:

CognitiveDevelopment:

Investigatinghowcognitiveprocesses,suchasmemory,attention,problem-solving,and decision-making,developinstudentsatdifferentagesandstagesofeducation.

LearningTheories:

Exploringandtestingvarioustheoriesof learning,includingbehaviorism,cognitivism, constructivism,and socio-culturaltheories,tounderstandhowstudents acquire knowledge andskills.

MotivationandEngagement:

Studyingfactorsthatinfluencestudentmotivation,engagement,andpersistenc ein educationalactivities,includingtheimpact of intrinsicandextrinsicmotivators.

SocialandEmotionalLearning(SEL):

Researchingtheroleofsocialandemotionalfactorsineducation,suchasemotion al intelligence,socialskills, andtheirimpact onacademicachievementandwell-being.

EducationalNeuroscience:

Examiningtheintersectionofneuroscienceandeducationtounderstandhowthebra in processesinformationandhoweducationalpracticescanbeinformedbyneuroscienti ficresearch.

EducationalPsychologyInterventions:

Developingandassessingtheeffectivenessof interventionsbasedonpsychologicalprinciples toaddresslearning difficulties,enhanceacademic performance,and promote positive behavior.

AssessmentandMeasurement:

Investigatingmethods ofassessingstudent learning,including thedevelopmentand validation ofeducationalassessments,standardizedtests,andalternativeformsofevaluation.

InclusiveEducationandSpecialEducation:

Researchingthepsychologicalaspectsofinclusiveeducation,includingstrategiestosup port studentswithdiverselearningneedsandthepsychologicalwell-beingofstudentswith disabilities.

DevelopmentalPsychologyinEducation:

Examininghowpsychologicaldevelopmentinfluenceslearning,includingresearc hon developmentalmilestones,cognitivestages,andtheimpactofsocio-emotionaldevelopment on academic success.

EducationalTechnologyandPsychology:

Studying thepsychologicalimpact oftechnology onlearning,includingresearch ononline education,digitaltools,andtheuseofeducational technologyintheclassroom.

Teacher-StudentRelationships:

Investigatingthe dynamicsofteacher-student relationships,theirimpactonacademic achievement,socio-emotionaldevelopment, and overall well-being.

PeerInteractionsandGroupDynamics:

Exploringthepsychologicalaspectsofpeerinteractionsandgroupdynamicswithin educational settings, including studies oncollaboration, peerinfluence, and social relationships.

EducationalCounselingandMental Health:

Researching thepsychological well-being ofstudents,addressingmentalhealthissues, and examiningtheroleofeducationalcounselinginsupportingstudents'emotionaland psychologicalneeds. Researchersinthepsychologicalareaofeducationalresearchemployvariousresearch methods,includingexperiments,surveys,observations,andinterviews, togaininsights intothepsychologicalprocessesunderlyingeducationalphenomena.Theirworkcontributes toevidence-basedpracticesand policiesineducation,withthegoalofenhancing the learningexperienceforstudents.

3.6 Sociological AreasofEducationalResearch:

Thesociologicalareaofeducationalresearch examines therelationship between education and society, investigating how social structures, institutions, interactions,and inequalities impact educationalprocesses and outcomes. Researchers inthisfield explore the societal factorsthatshapeeducationandhoweducation,inturn,influencesbroadersocialdynamics. Herearekeythemeswithinthesociological areaofeducationalresearch:

SocialInequalityinEducation:

Examininghowfactors such asrace, ethnicity,socioeconomicstatus, gender, and cultural backgroundinfluenceaccesstoeducational opportunities andoutcomes.

EducationalInstitutionsasSocialStructures:

Analyzingschools, colleges, and universities associal institutions and understandinghow theirstructurescontributetoormitigatesocialinequalities.

EducationalPoliciesandEquity:

Investigatingtheimpactofeducationalpoliciesondifferentsocialgroupsand assessing how policies contributetooralleviate disparitiesineducational attainment.

SocializationandIdentityFormation:

Exploringhow schools contribute tothe socializationprocess, shaping

individuals'identities, values, andbeliefs.

EducationalStratification:

Studying howeducational systems stratify individuals based onvarious factors, leading to thereproductionofsocialinequalities.

Teacher-StudentInteractions:
Analyzingthedynamicsof interactionsbetweenteachersandstudentsand howthese interactionsmayreinforceorchallengesocietalnormsandexpectations.

CulturalCapital and Education:

Investigatinghowculturalresources,knowledge,andpracticescontributetoeducation al successandsocialmobility.

GlobalizationandEducation:

Examining the impact of globalization on education, including issues related to internationalizationofeducation,cross-culturallearning,andtheglobalflow ofeducational policies.

CriticalPedagogy:

Exploring approaches to education that aimto challenge and transform social inequalities throughcriticalreflectionandaction.

EducationalAttainmentandEmployment:

Investigating the relationship between educationalattainment and employmentopportunities, wagedisparities,andsocialmobility.

TechnologyandEducation:

Studying howtechnologicaladvancements influence educational processes, accessto information,andthedigitaldivideindifferentsocialgroups.

SocialMovementsandEducation:

Examiningthe roleofsocial movements inadvocatingfor educational reform and challenging inequitieswithintheeducation system.

Researchersinthesociologicalareaofeducationalresearchusea combinationofqualitative andquantitativemethods,suchassurveys,interviews,observations,andstatisticalanalys es, toexplorethesethemes.Thegoalistounderstandthecomplexinterplaybetween education and society and contribute tothedevelopmentofmore equitable and inclusive educational systems.Thefindingsfromsociologicalresearchineducationofteninformpolicydecisio ns and educationalpractices aimed ataddressingsocialissuesandpromotingsocialjustice withintheeducationalcontext.

3.7 CheckYourProgress II

1. Mentionthemajorareasofeducationalresearch
2. Inter-disciplinarymeanscombination ofmorethantwodifferent subjectsinto one activity.(true/false)

3.8 LetUsSumUp:

In this lesson, we have discussed research, educational research and areas of educationalresearch.WehavealsolearnedthattherearesevеralpossibilitiesforcategorizingofareasofeducationalresearchPhilosophy, sociology, psychology, economics, history etc. arethesome ofthespecifics areasofeducational research.

3.9 Keywords/Glossary

Educational Research
Systematic and scientific investigation aimed at solving educational problems and improving teaching and learning.
Philosophy of Education
Study of fundamental questions about the nature, purpose, and values of education guiding educational practices.
Psychology of Education
Examination of cognitive, emotional, and social processes that influence learning and development.
Sociology of Education
Analysis of how education interacts with society, including social inequalities and cultural influences.
Curriculum Development
The process of designing, implementing, and evaluating educational programs and instructional materials.

3.10 LessonEndExercise

1. Classifiedthedifferentfieldofeducationalresearch.
2. ExplainthePhilosophical,PsychologicalandSociologicalareasofresearch.
3. How does educational psychology help improve student learning?

3.11SuggestedReadings:

- Best, JohnW,"ResearchinEducation", Englewood Cliffs, N.J:Prentice-Hall, Inc, 1977.
- Koul,Lokesh,"Methodology ofEducationResearch",VikasPublishingHouse Pvt. Ltd: NewDelhi, 1988.

- Sidhu,KulbirSingh "Methodologyof ResearchinEducation",Sterling;NewDelhi,

LessonNo.4

Unit-I

EDUCATIONALRESEARCH

Structure

4.1 Introduction: Educational

4.1 IntroductiontoEducationalResearch

Educationalresearch isa systematicprocess of investigating and studying various aspectsofeducationtoenhanceourunderstandingofhowpeoplelearn,howeducational systemsfunction,andhowtoimproveteachingandlearningpractices.Itisaimed atgaining adeeperunderstandingofvariousaspectsofeducation,fromteaching andlearning methods to educationalpoliciesandpractices.

Purpose: Theprimarypurposeofeducationalresearchistogenerateknowledge thatcaninformandimproveeducationalpolicies,practices,andoutcomes. Itaimsto addressquestionsandissuesrelatedtoteaching,learning,curriculumdevelopment, assessment,andeducationalpolicies.Educational researchexhibitsseveraldistinctive features that set it apart from other types of research.These features highlight the specific natureandfocusofresearchwithinthefield ofeducation:

- **Learner-Centered:**Educationalresearchplaces acentral focusonlearners,their needs,experiences,andoutcomes.Researchers oftenexaminehowvariousfactors, including teaching methods,curriculum design,andeducationalenvironments, impactthelearningprocess.

- **AppliedOrientation:** Muchofeducationalresearchisorientedtowardpractical applications.Researchersseeksolutionstoreal-worldeducationalproblemsand aimtoimproveteachingandlearningpractices,makingithighlyrelevant to educators,policymakers,andpractitioners.
- **Interdisciplinary:** Educationalresearch draws from various disciplines,including psychology, sociology, anthropology, economics, and pedagogy. This interdisciplinaryapproachallowsforacomprehensiveunderstandingofeducational phenomena.
- **VarietyofResearchDesigns:** Educationalresearchemploysdiverseresearch designs,includingexperimental,descriptive,correlational,andqualitativemethods, depending on theresearch question and goals. Researchers choosethemost suitable designtoinvestigatespecificeducationalissues.
- **ContextSensitivity:** Educationisinfluencedbycultural,societal,andcontextual factors. Educational research takesthese influences into account when examining theimpactofeducationalpracticesandpoliciesacrossdifferentsettings and populations.
- **LongitudinalStudies:** Someeducationalresearchinvolveslongitudinalstudies thattrackindividualsorgroupsoveranextendedperiod.Thisapproachprovides insightsintohoweducationalexperiencesshapelong-termoutcomes.
- **InformedbyTheory:** Educational researchoftenreliesoneducationaltheories andmodelstoguideinvestigations.Theoreticalframeworkshelpresearchers conceptualizeandinterpretfindingswithinabroadereducationalcontext.
- **EthicalConsiderations:** Ethicalprinciples arecriticalineducationalresearch, particularly when working with human participants,such asstudents, teachers, or administrators.Researchersmustensuretheethicaltreatmentofparticipantsand obtaininformedconsentwhennecessary.
- **Impact on Policy and Practice:** Educational research frequently informs educational policies, curriculum development, instructional strategies, andteacher training. Research findings have the potential to influence decision- making at various levels of the educationsystem.
- **ContinuousImprovement:** Thedynamic nature ofeducation means that research in this field is ongoing.Researchers continuallystrive to address emergingchallenges and adapt to changing educational needs, contributing to the continuous improvementof educationalsystems.

- **PeerReview:**Educationalresearchundergoesrigorouspeer reviewprocesses tomaintainqualityandcredibility.Peer-reviewedjournalsandconferencesare commonoutletsfordisseminatingresearchfindings.
- **Collaboration:** Collaborativeresearcheffortsareprevalent ineducation,involving researchers,educators,policymakers,andotherstakeholders.Collaboration enhancestherelevance andapplicability ofresearch outcomes.

Educationalresearchexhibitsfeaturesthatemphasizeitslearner-centered,practical, interdisciplinary, and context-sensitive nature.It aims to inform educationalpractices and policies, contribute to thewell-being of learners,and facilitate improvementsineducationatvariouslevels.

4.1.1**KeyComponents:**

- **Hypothesis:** Educational researchoftenstartswithahypothesis orresearch questionthatthestudyseekstoanswer.
- **Data**Collection: Researchers collectedatathroughsurveys,interviews, observations,experiments,orreviewsofexistingliterature.
- **DataAnalysis:**Dataisanalyzedusingstatisticalmethods,contentanalysis,or qualitative coding, depending ontheresearchdesign.
- **Findings:**Theresultsoftheirsearcharepresented, whichmayinclude statistical findings,trends,orqualitativeinsights.
- **Implications:**Researchers discusstheimplications oftheirfindingsforeducational practices,policies,orfutureresearch.

4.1.2**Importance:**

- ImprovingEducation: Educational researchhelpsidentify effective teaching methods,curriculum design, andeducational policies, leadingtobettereducational outcomes.
- InformedDecision-Making:Policymakers,educators,andadministratorsuseresearchfindingstomakeinformeddecisions abouteducationalprogramsand initiatives.
- ProfessionalDevelopment:Educatorscanuseresearchtoenhancetheirteaching skillsandadapttochangingeducationalneeds.

4.1.3**Challenges:**

Complexity:Educationisamultifacetedfieldwithvariousvariables thatcanbe challengingtostudyandmeasure.

EthicalConsiderations:Researchersmustconsiderethicalguidelines when working withhumansubjects,especiallyineducationalsettings.

Limited Funding: Educationalresearch often relieson funding,which canbelimited, affectingthescopeofresearchprojects.

Educationalresearch isasystematic inquiry into variousaspectsofeducation, aimedatgeneratingknowledge that caninform andimproveteaching and learning practices, curriculum development,andeducational policies. Itplaysacrucial roleinadvancingeducationandfacilitatingevidence-based decision-makingin thefield.

Inessence,educational research isadverse anddynamic fieldthat explores awide rangeofeducationaltopicsusingvariousresearchmethodsandapproaches .Its findings contribute to the improvementof teaching and learning,educationalpolicies, andtheoverallqualityofeducationatdifferent levelsandindiversecontexts.

4.2 Learning Objectives

Students,afterreadingthistopic,willbeableto:

- Toimproveresearchliteracyandethicsofeducationalresearch.
- Tocriticallyevaluateeducationalresearch&understandingtheimplication sof researchfindings.
- Toidentifyeducationalissuesandproblemsthataddressspecificchallenges in educationalsettings.
- Toimprove theirability tocommunicateeffectively through reports,presentations and publications.
- Tomakeevidence-baseddecisionsineducationalcontext.

4.3 TypesofEducationalResearch

Educationalresearchencompassesavarietyofresearchtypes,eachservingspecific purposeand addressing differenteducationalquestions.Differenttypesofeducational research serve diversepurposes and contribute to the broader understandingofeducation, helpingto shapepolicies,informteachingpractices,and addresstheuniquechallenges withinthefield.Researcherschoose themost appropriatetypebased ontheirresearch questionsandobjectives.

4.3.1 Fundamental Research

Fundamentalresearch isa research approach that isentirely theoretical and aimed at improvingor expandingthe knowledge-base ofa particular field ofstudy. It focuses on "knowledgeforitsown sake" anditisprimarilydrivenbycuriosityandtheneed toexplore theunknown.It isalso

known asbasic or pure researchand it isasystematic investigation set to achieve a better and more detailed understanding of a research subject or phenomenon,nottosolveaspecific problem typeofscientific inquiryaimed atadvancing knowledgeandunderstandingofaparticularfieldwithoutanyimmediateorpractical application.It isdriven by intellectualcuriosity and the desire toexplore thefundamental principles,theories,and concepts underlying asubject area. Here's adetailed explanation of basic research:

4.3.2**Need:**

Fundamentalresearchintheeducationalprocessisessentialforseveralreasons:

a. **Understanding Foundations:** Fundamental research helps educators and researchersunderstandthefoundationalprinciplesofeducation,suchashow learningoccurs, cognitive development,andeffectiveteaching methods.This knowledgeformsthebasisforeffectiveeducationalpractices.

b. **Innovationand Improvement:**It drives innovation and improvementineducation byexploringnewtheories,ideas,andapproaches.Thisresearchcanleadtothe developmentofmore effective teaching methods,curriculum design, and educational technologies.

c. **Evidence-BasedPractices:**Fundamentalresearchprovidestheevidenceneeded tosupportordebunkvariouseducational practices.Ithelpseducatorsmake informeddecisionsaboutwhatworksbestintheclassroom.

d. **Addressing Complex Issues:** Many complex educational issues, such as achievementgaps,diversityandinclusion,andtheimpactofsocio-economic factors onlearning,require in-depth understanding through fundamentalresearch todevelop solutions.

e. **Policy Development:**Policymakersrelyon research findings todevelop effective educationalpoliciesand allocate resourceswisely. Fundamental research provides thedataand insights needed forevidence-based policymaking.

f **ProfessionalDevelopment:**Fundamentalresearchinformsteacher training and professionaldevelopmentprograms. Teachers canbenefit from research-based strategiestoenhancetheirteaching skills.

g. **Long-TermImpact:**Researchineducation hasalong-termimpact onsociety. Discoveries made through fundamentalresearch can shape the education system, influence educationalstandards,and ultimately affect

thequality ofeducation for generations.

h. **Global Competitiveness:** Inarapidlychangingworld, nationsthatinvestin fundamentalresearchineducationcangainacompetitiveedgebyproducing a highlyskilledandadaptableworkforce.

Onwhole,fundamentalresearch intheeducationalprocessiscrucialforadvancing education,fosteringinnovation,andaddressingthecomplexchallengesthatarise in educationalsystems.Itformsthefoundationuponwhichevidence-basedpracticesand policies arebuilt.

4.3.3 **Conducting FundamentalResearch**:

In education involves asystematicand rigorous process.Thekeystepstoguideareasfollows:

1. **Select aResearch Topic:**

- Identifyaspecificeducationaltopicorquestionthatinterestsyouandisrelevant to thefield.
- Ensurethatyourresearchquestionisclear,focused,andresearchable.

2. **Review ExistingLiterature:**

- Conducta thorough literaturereview to understandwhat has already been studiedin your chosen area.
- Identify gap sorun answered questions intheexisting research that your studycan address.

3. **FormulateaResearchHypothesis orQuestion:**

- Developaresearchhypothesisorresearchquestionthatyouintendtoinvestigate.
- Ensureyourhypothesis/questionistestableandalignedwiththeexistingliterature.

4. **Choose a Research Design:**

- Select a research design that suits your research question. Common designs ineducation researchincludeexperimental,survey,casestudy,andqualitativeresearch.
- Decide on the data collection methods and instruments (e.g., surveys, interviews, observations)youwilluse.

4 **EthicalConsiderations:**

5.1 Obtainnecessaryapprovalsandpermissions if yourresearchinvolveshuman participants,ensuringethicalstandards aremet.

5.2 Protect the privacy and rights of participants, and obtain informed consent whenapplicable.

5 DataCollection:

6.1 Collect data according to your chosen research design.

6.2 Maintain accurate records of your datacollection process.

6 DataAnalysis:

7.1 Analyze the data using appropriate statistical or qualitative analysis methods.

7.2 Interpret theresults in the context of yourresearch question and hypothesis.

7 DrawConclusions:

Based on your analysis, draw conclusions that address your research question orhypothesis.

Discuss the implications of your findings and their significance in the field of education.

8 Write a ResearchReport:

Prepare a well structuredresearch reportorpaperfollowingacademicconventions (e.g.,APA,MLA,Chicagostyle).

Include sections such as an introduction, literature review, methodology, results, discussion,andconclusion.

9 Peer Review andFeedback:

Seekfeedbackfrompeers, advisors, ormentorstorefineyour researchand address any weaknesses.

10 Publication:

Consider submitting your research to academic journals or presenting it at conferences to shareyourfindingswiththeacademiccommunity.

11 Continuous Learning:

Stayupdated withdevelopmentsinyourfield andcontinue learningtoimprove yourresearch skills.

Be open to revising andexpanding your research based on new insights and emerging research.

12 Documentation and References:

Properlyciteandreference allsourcesofinformationusedinyour research toavoid plagiarism.

Remember that fundamentalresearch in education can be a time-consuming and iterative process. Patience, attention todetail, and a commitmenttorigor areessential for producing high-qualityresearchinthisfield.

4.3.4**Objectives:**

Theobjectivesoffundamentalresearch,alsoknownasbasicresearch,revolve around advancingourunderstandingofthefundamentalprinciples,theories, andphenomenawithin aspecific field ofstudy.These objectives are primarily driven byintellectual curiosity and the desire toexplore theunknown.The primary goal offundamentalresearch isto expand theboundariesof knowledgewithinaspecificdiscipline.Itseekstoanswerfundamental questions,uncoverunderlyingprinciples,anddevelopnewtheories.

Fundamentalresearch isoften driven by researchers 'curiosity and the desire to explore the unknown ratherthansolving apracticalproblemoraddressinganimmediate need.

- **ExpandKnowledge:**Theprimaryaimoffundamentalresearchistoexpandt he boundariesofknowledgewithinaparticulardiscipline.Researchersseektoans wer fundamentalquestions,exploreunchartedterritories,andgainadeeperunderstandin gof the subject matter.

- **Testand DevelopTheories:** Fundamentalresearchofteninvolvesthetesting anddevelopmentoftheoriesandmodelsthatexplainnatural,physical,orsocialphenome na. Researchersaimtorefineexistingtheoriesorproposenewonestoaccountforobserve d phenomena.

- **DiscoverNewPhenomena:**Researchersinfundamentalresearchmaystu mble upon entirely new phenomena,relationships, or principles that were previously unknown. Thesediscoveriescanopenupnewavenuesof inquiryandexploration.

- **UnderstandCause-and-EffectRelationships:**Researchersinvestigatecause- and-effectrelationships invariousdomains,seekingtouncovertheunderlyingmechanisms behindobservedphenomena.Thiscanleadtoamoreprofoundcomprehensionofho w theworld works.

- **ProvideaTheoreticalFramework:**Fundamentalresearchcontribute stothe developmentofatheoreticalframeworkthatcanguidefutureresearch, bothwithinthe specificfield andinrelateddisciplines.

- **Foster Intellectual Curiosity:** It encourages intellectual curiosity and a sense of wonder,inspiringresearcherstoaskdeeperandmorefundamentalquestions aboutthenaturalorsocialworld.

- **SupportAppliedResearch:** While notitsprimarygoal,fundamentalresearch

oftenservesasthefoundationforappliedresearch.Discoveriesandinsightsgained frombasicresearchcaninformpracticalapplicationsandinnovationsin technology, medicine, engineering, andotherfields.

- **ContributetoScientific Progress:** Fundamentalresearchisanessentialdriver ofscientificprogress. Itaddstothebodyofscientific knowledge,enrichingour understandingoftheworldandhelpingusmakesenseofcomplexphenomena.
- **EducationalValue:** Fundamental research contributes totheeducation andtraining offuturescientists,researchers,and scholars.Itprovidesvaluableopportunities forstudentstoengageinintellectually stimulatingresearchactivities.
- **Long-TermImpact:**The impact of fundamental research is often long- term and may notbeimmediatelyapparent.However,overtime,theknowledge generated from basic research canlead to breakthroughs,innovations, and advancementsinvariousfields.
- **CulturalandSocietalValue:**Fundamentalresearchenhancesourcultural and societalunderstandingoftheworld.Itfuelsourcollectivecuriosityandhelpsus appreciatethebeautyandcomplexityoftheuniverse.
- **PromoteInterdisciplinaryCollaboration:**Fundamentalresearchoften involves collaborationbetweenresearchers fromdifferentdisciplines. Thisinterdisciplinary approach canleadtoinnovativeperspectivesand solutionstocomplexproblems.

Theobjectivesoffundamentalresearchare driven bythe pursuitofknowledge for itsown sake. Whiletheimmediatepractical applicationsmay not beevident, thelong-term impact on scientificprogress,innovation,andourunderstandingoftheworldisprofoundand enduring.

4.3.5**Characteristics:**

Exploratory: Basic research often delves into uncharted territory, seeking to discover new phenomenaorrelationships.

Theoretical: Itfrequentlyreliesonthedevelopmentortestingoftheoriesandmodelsto explainnaturalorsocialphenomena. NoImmediate Application: Unlike applied research, basic research does not have an immediate practicalorcommercialapplication.
Itsbenefitsmaybecomeapparentonlyinthelong term. High Degree of Uncertainty: Researchers may not know the precise outcomes or implicationsoftheirinvestigations,whichcanleadtounexpecteddiscoveries.

4.3.6**Methods andApproaches:**

Fundamentalresearch employs awide range of research methods, including experiments, observations, surveys, and theoretical modeling, depending on the nature of the research question. Researchersoftencollaborateacrossdisciplinestobringdiverseperspectivestoth eir investigations.

Examples:

Inphysics,thestudy ofsubatomicparticles, like quarks and neutrinos,isaclassic example ofbasicresearch.Understandingtheseparticlescontributestoourknowledgeoft he fundamental buildingblocksoftheuniverse.

Inbiology,basic research might involve exploring the mechanisms ofgenetic inheritance, whichledtothediscoveryofthestructureof DNA byJamesWatsonandFrancisCrick.

Insocialsciences,studyinghumanbehaviorandcognitiveprocesseswithoutaspeci fic practicalapplicationcanyieldinsightsintofundamentalaspectsofpsychologyandsociology.

4.3.7**ImpactandBenefits:**

Theimpactof Fundamentalorbasicresearchisoftenindirectandlong-term.Discoveries made inbasic researchcanserveasthe foundationfor appliedresearchandinnovationin variousfields.

Basicresearchcanleadtounexpectedbreakthroughsandinnovationsinthefuture.Manypr actical applications, suchastechnological advancements,haverootsinbasicresearch.

Whiletheimmediatebenefits may notbeapparent, thecumulative knowledgegained from basicresearchenricheshumanunderstandingandcontributes totheadvancement ofsociety.

FundingandSupport:

Fundamentalresearchissometimes funded bygovernmentagencies, foundations, and universitiesbecauseof itspotentialforlong-termsocietalbenefitsandscientificprogress.

Itoftenrequiresadegreeofpatienceandtoleranceforuncertaintyonthepartoffunders, astheoutcomesmaynot beimmediatelytangible ormarketable.

Fundamental orBasic research isavital component ofthe scientific and academic community's pursuit of knowledge. It focuses on expanding our understanding of fundamentalprinciples andtheories, layingthegroundwork forfuturediscoveries and innovationsinvariousfields.Whilethepracticalapplicationsmaynot beimmediately obvious,thelong-termimpactofbasicresearchonsocietyandhumanknowledgeis profound.

4.3 Check Your Progress:

1. What are the first two steps in conducting fundamental research in education?
2. Why is reviewing existing literature important before conducting research?
3. What ethical practices should a researcher follow when dealing with human participants?
4. Explain the importance of peer review in educational research.
5. Give one example of fundamental research in any field.

4.5 AppliedResearch:

Appliedresearchreferstoanon-systematicapproachthatprovidessolutionsto specificproblemsor issues.These issuescanrange from a personalone toa group or societal one. Due to itsdirect approach to finding solutions,it is called a non-systematic approach. Anappliedresearchprocessisoftenseenasascientificprocessbecausethetoolso f sciencareappliedpractically toreach aconclusion.Appliedresearch isatypeofscientific investigation that focuses on solving practical problems, answering specific questions,or addressing immediate real-world challenges. Unlikefundamental orbasic research, which aims toexpand general knowledge and understanding, appliedresearch isconcernedwith the practical applicationofknowledge to practical issues.The concept ofappliedresearch revolves aroundconductingsystematic investigationswith the primary goal of addressing practical problems, answering specific questions, orsolving real-world challenges. Unlike basic orfundamental research, which seeks to expand general knowledge,applied research isfocusedonthepracticalapplicationofknowledgetoaddressimmediateandtangib le issues. Here'sacomprehensiveexplanation oftheconcept ofappliedresearch:

- **Practical Problem Solving:** Applied research isdriven bythe need tosolve specific, practical problems or address pressing issues faced in various domains, including science, technology,business,healthcare,education, andsocialsciences.
- **Real-World Application:** It is highly application-focused, with the aim of using existing knowledge,theories,andprinciplestodevelopsolutions,strategies,orinterventions that canbedirectlyappliedtoreal-world situations.
- **Context-Specific:**Applied researchiscontext-specific,meaningit istailoredto theuniqueneedsandcircumstancesoftheproblemorchallengeathand.Researche rs oftencollaborate withstakeholders todefine researchobjectives and parameters.
- **Action-Oriented:**Researchersinappliedresearchoftentakeconcreteactions based

ontheir findings. This may involve developing new technologies, implementing interventions,formulatingpolicies,ormaking operationalchangestoaddresstheidentified problem.

- **ImmediateRelevance:**Applied researchaimstoproduce resultsand solutions in a timely manner to address current and immediate concerns.The research outcomes are directlyrelevantandusefulinaddressingspecificissues.

- **EmpiricalInvestigation:**Appliedresearchreliesonempiricalmethods,data collection,and evidence-based analysis toassessthefeasibility,effectiveness, and efficiency of interventions,products,orstrategies.

- **Interdisciplinary Nature:** It can span multiple disciplines, incorporating knowledge and methodologiesfromvarious fields totacklecomplex problems holistically.

Examples:In healthcare,clinical trials to evaluatetheeffectivenessandsafety ofa new drug areclassicexamplesofappliedresearchaimedatimprovingpatientoutcomes.

Inthebusinessworld,marketresearchisappliedresearchthathelpscompaniesmake informeddecisionsaboutproductdevelopment,marketingstrategies,andconsumer preferences.

In education, applied research may involve developing and testing new teaching methods or educationaltechnologiestoenhancestudentlearning.

4.5.1**ImpactonDecision-Making:**

Thefindingsandrecommendationsofappliedresearchofteninfluencedecision-making processes,leadingtochangesinpolicies,practices,product designs, andstrategicplans.

Continuous Improvement:Appliedresearch can lead to an iterative process ofcontinuous improvement,whereinitialsolutions arerefined andenhancedbased onfeedback and furtherresearch.

Feedback Loop, Theresults ofone applied research study can inform subsequentresearch efforts, creating a feedback loopthatcontributes toongoingimprovements andinnovations.

The concept ofapplied research centers on addressingpractical challenges and providing solutionsbyusingempiricalmethodsandexistingknowledge.Itsresultsaredirectlyrelevant and actionable,makingitavaluableapproachforaddressingreal-worldissuesinvariousfields.

4.5.2**Need:**

Applied research in theeducational process is vital for several reasons:

a) Practical Solutions: Applied researchaimstosolvereal-world

problemsin education.Itdirectlyaddresseschallengesfacedbyeducators,students, and educationalinstitutions, providingpracticalsolutions.

b) **Improving TeachingandLearning:** Ithelpsidentifyanddevelopeffective teachingmethods,curriculum designs, and educationalinterventions.Thisleadsto improvedlearningoutcomesforstudents.

c) **AssessmentandEvaluation:** Appliedresearchineducationcontributest othe developmentof betterassessmenttoolsandevaluationmethods.Thisensures thateducatorscanaccurately measurestudent progressandmakeinformed instructionaldecisions.

d) **TailoredInterventions:** Researcherscandesigninterventionsandpro grams specificallytailoredtotheneedsofdiversestudentpopulations,includingtho se withspecialneedsorfromdisadvantaged backgrounds.

e) **Professional Development:** Applied research supports the continuous professionaldevelopmentofteachersandadministrators byprovidingevidence- based strategies andpracticesthatenhancetheirskillsand knowledge.

f) **InclusionandEquity:** Itfocusesonpromotinginclusivityandequityine ducation, helping to bridge achievement gaps and create a more equitable learning environment.

g) **PolicyImpact:** Policymakers relyonapplied researchfindingstomakeformed decisions about education policies and resource allocation, ensuring that public educationsystemsareefficientandeffective.

h) **Feedback Loop:** Applied research establishes a feedback loop between researchers and practitioners. Educators can provide valuable insights, and researcherscanadapttheirworktoaddresstheevolvingneedsofthee ducation system.

i) **Innovation inTechnology:** Withtherapid advancementoftechnology,applied research in education helps identify how to effectively integrate technology into the class room and onlinelearningenvironments.

j) **EconomicandSocialImpact:** High-qualityeducationhasaprofoundimpacton acountry'seconomicandsocialdevelopment.

Appliedresearchcontributesto achievingeducationalgoalsand,consequently,broadersocietalbenefits.

Applied researchintheeducationalprocessservesasabridgebetweentheoretical knowledgeandpracticalapplication.Itdirectlybenefitsteachers, students, schools, and educationalsystemsbyofferingevidence-basedstrategiesandsolutionstoenhancethe quality andeffectiveness ofeducation.

4.5.2**Objectives:**

Theobjectivesofappliedresearcharehighlypractical,focusingonaddressingspecific real-worldproblems, answering concretequestions, andprovidingactionable solutions or recommendations.Applied research isdriven bythe need to bring about practical improvements,advancements,orinnovations invariousfields.Detailedexplanation ofthe objectives ofapplied research:

1. **Solvingthe**problems: The primary objective of applied research is to identify, analyze, andsolvepracticalproblemsencounteredinspecificdomains,suchashealthcare,business, education,engineering,andsocialsciences.Researchersaimtofindpracticalandeffective solutionstoissues that impactindividuals,organizations,or societyasawhole. Applied research ischaracterizedbyitscommitmenttoapplying existing knowledge,theories, and principlestoaddressreal-worldchallenges.Itseekstotranslatetheoreticalconceptsinto tangibleactionsandresults.

2. Actionable Insights: Applied research isdesigned to provide actionable insights, recommendations,orinterventions that can bereadily implementedto bring aboutpositive changeorimprovementinaspecificcontext.

3. Specific Objectives: It sets clear and specific objectives, often defined in collaboration with stakeholders,toguide theresearch process.These objectives areaimed atresolvingparticularissuesorachievingpredefinedgoals.

4. ContextualUnderstanding: Appliedresearch seeks to gain a deep understanding ofthespecificcontextandconditionssurroundingtheproblemThiscontext-awareness is crucialfortailoringsolutionstofittheuniquecircumstances.

5. **EmpiricalInvestigation:**Researcherscollectempiricaldatathroughvarious methods,suchassurveys,experiments,observations,andinterviews,tosupporttheir findingsandrecommendations.Thedatagatheredallowsforevidence-

baseddecision-makingandtheassessmentofthefeasibility,effectiveness,andefficiencyofproposed solutions.

6. **Timely Results:** Applied research aims to produce timely results. It operates on relatively shorttimeframes toaddress current andpressing concerns,makingitrelevant andresponsivetoimmediateneeds.

7. **Interdisciplinary Approach:** It often involves an interdisciplinary approach, drawing on knowledge and methodologiesfrom multiple fieldsto provide comprehensive and holistic solutionstocomplexproblems.

8. **InnovationandImprovement:** Appliedresearchencouragesinnovation and continuous improvementby developing andtesting newstrategies, technologies,products, orservices. Itcontributes toadvancementsinvarioussectors, drivingprogressand competitiveness.

9. **FeedbackforIteration:** Appliedresearchfrequentlyresultsinfeedbackloops, wherefindingsandrecommendationsfromonestudyinformsubsequentresearch and refinementofsolutions.Thisiterative processcanleadtoongoing enhancements.

10. **MeasureableOutcomes:** Appliedresearchsetsmeasurableoutcomesorsuccess criteriatoevaluatetheeffectivenessof interventionsorsolutions.Thisallowsforthe assessmentofwhethertheobjectiveshavebeenmet.

Theobjectivesofappliedresearch revolve aroundpracticalproblem-solving, providing actionable solutions,and making atangible impact in specific domains. It ischaracterized byitscontext-specificapproach,empiricalinvestigation,andcommitmenttoaddressing pressing issuestobringabout positive changeand progress.

4.6. Check Your Progress-II:

1. Define educational research and explain its significance?
2. Differentiate betweenFundamental and appliedresearch?
3. Howdoes fundamental research contribute to thetheoretical foundation of educational practices?
4. What is the primary purpose of applied research in the context of education?
5. How does applied research benefit teachers and students in real-world educationalsettings?

4.7Let'sSumUp:

Educational research is a systematic and scholarly inquiry into various aspects ofeducation.Its primary goal is to advance knowledge andunderstanding in the field of education.

Itencompasses awiderangeoftopicsand methodologies,includingpedagogy,learning theory,policyanalysis,andmore.

Educational research contributes to the development of theories, informs teaching practices, and influenceseducationalpolicies.

Fundamental Research in Education:

Fundamentalresearchineducationfocusesonexploringfoundationalprinciplesandtheoretical underpinningsofeducationalphenomena.

Itaimstoexpand theoreticalknowledgeandoftenaddresses broad,abstractquestionsin education.

Fundamentalresearchprovidesatheoreticalbasisuponwhichappliedresearchcanbuild.AppliedResearchinEducation:

Applied researchineducationisgearedtowardsaddressingpracticalissuesand solving real- worldproblemsineducation.

It translates theoretical knowledge into practical solutions, improving teaching, learning,andeducational practices.

Applied research hasadirect impact oneducators, students, and educational institutions, often leading to tangible improvements inthe education system.

4.8 Keywords/Glossary

Applied Research	A type of research focused on solving specific, practical problems using empirical methods and existing knowledge.
Practical Problem Solving	The main aim of applied research—addressing real-world issues in fields such as education, healthcare, and business.
Empirical Investigation	The collection and analysis of data through observation, experimentation, or surveys to derive conclusions.
Context-Specific	Applied research is tailored to a specific setting or issue, considering local conditions and needs.
Action-Oriented	Focused on creating usable solutions or interventions rather than just theoretical understanding.
Timely Results	A goal of applied research to

	provide outcomes quickly for immediate application.
Interdisciplinary	Involves combining knowledge from multiple fields to create holistic and effective solutions.
Feedback Loop	A process where results from one research phase inform further studies, allowing continuous improvement.
Decision-Making	One of the main impacts of applied research, especially in shaping policies and strategies in education.
Inclusion and Equity	Applied research helps promote fairness by addressing the diverse needs of all learners, especially marginalized groups.

4.9 Lesson End Exercise:

1. List three real-world fields where applied research is commonly used.
2. What is the role of empirical investigation in applied research? Give one method used.
3. Why is being "context-specific" important in applied research? Provide an example.
4. How is appliedresearch action-oriented compared to purely theoretical research?
5. What does "interdisciplinary" mean, and why is it beneficial in applied research?

4.10SuggestedReadings:

- "EducationalResearch:Planning,Conducting,andEvaluatingQuantitativeandQualitative Research" by John W. Creswell: This comprehensive book covers various research methodologies,includingfundamentalresearchapproaches.
- "Educational Research:AnIntroduction"by**R.** Burke Johnson and LarryChristensen:It provides a solid introduction to thebasicsofeducational research, including fundamental research principles.
- "Practical Research: Planning and Design" byPaul D. Leedy and Jeanne Ellis Ormrod: This book focuses on thepractical aspects of conducting applied researchin education, including designing studies and analyzing data.
- "Applied ResearchDesign: A Practical Guide"byTerryE. Hedrick: It offers guidance on designing and conductingapplied research studies, with afocus oneducational contexts.
- General Educational Research:

"EducationalResearch:Competencies forAnalysisandApplications"byGeoffreyE.Mills: Thisbookprovides anoverview ofeducational research, including bothfundamentaland applied aspects.

- "Introduction to Educational Research" by CraigA.Mertler: It offers abroad introductionto educational research methods and their applications inbothfundamental and applied research.
- "The Oxford Handbook of Educational Research" edited byJohnL. Rury and Patricia G Weiland:Thiscomprehensivehandbook exploresvariousaspectsofeducational research, offering insights into both fundamental and applied research in education.

LessonNo.5

Unit-I

ACTIONRESEARCH

Structure:

5.1 Introduction

5.2Learning Objectives

5.1 Introduction

Action Research is a kind of research that helps people solve real-life problems, especially in areas like education, social work, and workplaces. It is usually done by the people who face the problem—like teachers, school leaders, or team members—so they can find ways to make things better.

Unlike other research that is mostly done in labs or by outside experts, action research is done **by the people involved in the situation**. They study the problem, plan what to do, take action, and then check if the solution worked. This cycle can be repeated until good results are achieved.

One of the special things about action research is that it is **done together**. People work in teams, share ideas, and help each other. This makes the research more meaningful and helps everyone learn new skills like working in a team, solving problems, and being good leaders.

In schools, action research helps teachers improve how they teach and solve problems like students not paying attention, missing school, or having trouble understanding a subject. By doing this kind of research, teachers can make their classrooms better places for learning.

The main goal of action research is not just to study problems but to **find real and useful solutions** that can help improve everyday work. It connects learning and doing, helping people make changes that really work and last over time.

5.2 Learning Objectives

Students , after reading thistopic,will be ableto:

- To learn, analyze and assessproblems, issues and datacritically.
- Togain practical problem-solving skill by actively engaging in research to address real- worldissue.
- To learn how towork effectively in teams.
- To developleadershipskills bytakingtheinitiative.
- Tobecomemoreattunedtoethicalconsiderationsinresearch.

5.3 MeaningofactionResearch

MeaningofResearch-

Theresearchprocessestablishesnewtruth,findsout newfacts, formulationofnewtheories and suggests to new applications.Itisa purposeful activitywhichcontributestotheenhancementofknowledge.AccordingtoRandom Marey."Researchissystematizedeffortstogainnewknowledge"

Actionresearchisasystematicandreflectiveapproachtoproblem-solvingandimprovement invariousfields,particularlyineducationand social sciences.Itinvolves researchers,often practitionersor educators,actively engaging intheresearchprocesstoidentify,understand, and address specific issues or challenges within their own work or organizational settings. Action research ischaracterizedbyits participatorynature, iterative cycles, andtheaim of bringingaboutpracticalchangeorimprovement.

Actionresearchisa valuable tool inthe hands oftheteacher to solveday to dayproblems ofclassteaching&educationalguidance. Action researchprovides anoccasion tothe teacherstousetheimaginationsofchildrencreativelytochangeclassroompractices to meetwithneedsanddemands ofpupilsadequatelyandtotryoutsuch practices which give greater promises,confidenceand worth. Action research develops scientific outlookin the teachers, inspectors,administrators, managementsetc ofthe educationalinstitution theprogressinthefieldofeducationdependsuponthedevelopmentofscientificoutlook in the participants.Action research helps to preserve the democraticvalues and eliminates and dogmatic practices inthe educational institutions.Results obtainedbyaction research aremore practical worthwhile from thestandpointoftheir application and implementation inthefieldofeducation.Duetoitsflexibilityitisan ideal instrumentfor educationguidance. Actionresearchcanutilizetheskillslikeobserving,recordingmakinghypothesistesting themreachingtentativeconclusionetc.

Actionresearch isinquiry or research inthe contextoffocusedefforts to improve thequalityof anorganizationanditsperformance.Ittypicallyisdesignedandconducted bypractitioners who analyze the data toimprove their own practice.Actionresearchcanbe done byindividualsorbyteamsofcolleagues.Theteamapproachiscalledcollaborative

inquiry. Action research hasthe potential togenerate genuine and sustained improvements inschools.Itgiveseducatorsnew opportunities toreflectonandassesstheir teaching;to explore and test new ideas, methods, and materials; to assess how effective the new approaches were; to share feedback with fellow team members;and to make decisions about whichnewapproachestoincludeintheteam'scurriculum,instruction,and assessment plan.

5.4 NeedofactionResearch:

GenerallyinIndia,acurriculumissetupand giventotheteachers tofollow intheir teachinglearningprocessduringayear.Thiscurriculumisbasedonconstantresearches and studiesgoing onin the field ofeducation.Such researches are fundamentalresearches whichaddtotheexisting factsinacertainfield. The problemsrelated tosyllabus,teaching methods,adjustmentof students,etc. are few suchareaswhichcanbetakenupfor fundamental researches.But, the minor problems like problems related to discipline or absenteeism or fatigue or boredomrelatedtoparticularsubjectslikeHistory,ScienceorMathematicswhichfaces byanindividualteacherinherclassroomcannotbesolvedbythefundamentalresearch becausetheseproblemsrequiredimmediatesolutionthatcanbefoundbytheaction research.Theresearcherssayateacher isanartisttomouldhisstudentsintothe shape he likes. Sobeinganartistitisthe utmostdutyoftheteachertoseeandcheckwhyheisunableto shape those specialcategory students.Theaction which ateacher can take up to study the probable causesofan existing problem and thereby providingsuggestions to eradicate the problemiscalledActionResearch.

5.5ObjectivesofactionResearch:

Actionresearch is conductedwith specific objectivesin mind,all aimed at addressing practical problems or challenges within a particular context and facilitating meaningful change or improvement.Theseobjectives guide the research process and outcomes. Here'sadetailed explanationoftheobjectivesofactionresearch:

1. **ProblemIdentification:**Oneoftheprimaryobjectivesofactionresearchisto identifyand defineapracticalproblem orchallengewithinaspecific context. Thisinvolves recognizingissuesthatmayhinderproductivity,effectiveness,oroverallwell-beingina workplace,classroom, community, ororganization.
2. **Understanding the Problem:** Action research aims to gain a deep and comprehensiveunderstanding oftheidentifiedproblem. Researchers and participants collaboratetoexploretherootcauses,contributingfactors,andconsequencesoft

he problem.Thisobjectiveinvolvesexaminingexistingpractices,processes,andbehaviors touncoverinsightsintowhytheproblemexists.

3. ActionPlanning: Actionresearchinvolvesthedevelopmentofaction plansor strategiestoaddresstheidentifiedproblem.Researchersand participantswork together to formulateclear, feasible, and context-specificinterventions. Theplanning phaseincludes setting objectives,defining rolesand responsibilities,and determining thecriteriaforsuccess.

4. Implementationof lnterventions : Anotherkeyobjectiveistoimplementthe planned interventions orchanges within thespecific context.Thismayinvolve adjustments topractices,policies,procedures,teachingmethods,orworkflows.Thegoalistoputthe proposedsolutionsintoactiontotesttheireffectiveness.

5. DataCollection: Actionresearchrequiresthecollectionofempiricaldata to assesstheimpactoftheimplementedinterventions.Researchersusedatacollectionmethods such as surveys, interviews, observations,or document analysis to gather information. The objective is to collect evidence that helps evaluate whether theinterventionsare producing the desired outcomes.

6. DataAnalysis and Reflection: Dataanalysisisacritical objective ofaction research.Researchers andparticipants collaborativelyanalyzethecollected datato determinewhethertheinterventionsareeffective,andifnot,whatadjustmentsmaybe needed.Reflectiononthedataandfindingsisacontinuousprocess, facilitatingdeeper insightsandabetterunderstanding oftheproblemandpotentialsolutions.

7. Iterative Improvement: Action research follows aniterative cyclewhere findings and reflections inform further actions and refinements.Iftheinterventionsdo not produce thedesiredoutcomes,researchersmake adjustments andrepeat thecycle.Thisiterative processallowsforcontinuous improvementandadaptation basedonongoingfeedback.

8. Sharing Knowledge: Actionresearchseekstodisseminateknowledge andinsights gained from their search process. Researchers often share their findings, experiences, and recommendationswithcolleagues,stakeholders,orthebroadercommunityShari ngknowledgeisessentialforcreatingawareness,promotingchange,andinspiringotherstoapplysimilarapproaches.

9. SustainableChange:

Ultimately,actionresearchaimstoachievesustainable changeorimprovementwithinthespecificcontext.Theresearch objectivesincludenot only addressing the immediate problem but also creating

lasting solutions and fostering a cultureofongoingimprovement.

10. Ethical Considerations: Ensuring ethical conduct throughout the research process isanimportantobjective.Researchersmustprotecttherights,privacy,andwell-beingof participants and adheretoethicalguidelines.

In conclusion, the objectives of action research revolve around identifying, understanding, and solvingpracticalproblemswithinspecificcontexts.Thisprocessinvolvescollaboration, datacollectionandanalysis,reflection,iterativeimprovement,andthedissemination of knowledge.Theultimategoalistobringabout meaningful andsustainablechange.

5.6 StepsofActionResearch

In designing and conducting action research, project the following steps are used.

I. Identification of the problem -A researcher should be serious towards various activities.The problems isisolatedfrom thebroad fields. An investigatormustrealize the seriousnessoftheproblems.

II. Definitionanddelimitationoftheproblem - Afteridentifying theproblemit shouldbedefined.Sotheactionandgoalmaybe specified.The delimitationmeansto localizethe problemintermsofclass,Subject,groupand period in whichateacher perceives theproblem.

III. AnalyzingtheCausesoftheproblem-
Thecausesoftheproblemareanalyzed withthehelpofsomerelevance.Thenatureofcausesarealsoanalyzedwhetheritisthe controlor beyondthecontroloftheinvestigator.Thishelpsinformulatingtheaction hypotheses.

IV. **Design fortheactionhypotheses** - Thedesign isdeveloped fortestingthe most importantactionhypotheses.Someactionmaybetakenandtheirresultsare observed. Ifthehypotheses is accepted second design is developed for testing the hypotheses. Thedesignofaction researchisflexibleandcanbedesignatanytimeaccordingtotheconvenience of researcher.ConclusionsofActionResearchProject-
Theacceptingorrejectingaction hypotheses leads to draw some conclusions.Theconclusions are useful in modifyingand improvingthecurrent practicesofschoolandclass-roomteaching.

5.7Check Your Progress-I

1. What is the primary purpose of action research in education?
2. How does action research differ from traditional research in an

educational context?

3. Can you describe the typical steps or phases involved in conducting actionresearch?
4. What are some common challenges that educators may encounter when conducting action research?

5.8 Differencebetween fundamental,appliedresearchandactionResearch:

The main differences between fundamental and applied research lie in their objectives, focus,and outcomes:

Objective:

FundamentalResearch: Theprimaryobjectiveoffundamentalresearchistoexp and ourgeneralunderstandingofnatural phenomenaanduncover underlyingprincipleswithout immediatepracticalapplicationsinmind.Itaimstoanswerfundamentalquestionsa nd increaseknowledgeforthesakeofknowledgeitself

AppliedResearch:The primary objective ofapplied research isto solve specific practical problemsoraddressreal-worldchallenges.Itfocusesondevelopingpractical solutions, innovations, orimprovementsbasedontheknowledge acquiredfromfundamental research.

Focus:

FundamentalResearch: Itexploresthetheoretical aspectsofasubject, seekingto understandthefundamentalprinciplesandmechanismsunderlyingaphenomenon.

Applied Research: It emphasizes the practical application of existing knowledge to address specificproblems,improveprocesses,orcreatetangibleoutcomes.

Timeframe:

FundamentalResearch: Itoftenhasalongertimeframe,asitinvolvesexploring new territory, developing theories,andconductingfoundational experiments.

AppliedResearch: Ittendstohaveashortertimeframe,aimingtoproducepractical resultswithinamoreimmediate timeline,oftenfocused onspecific goals.

Relevance:

FundamentalResearch: Whileessentialforadvancing knowledge, theimmediate practical relevanceoffundamentalresearchmaynotbevident,anditsapplicationsm ayemerge overtime.

Applied Research: It hasdirect relevance to industries, businesses, and societal needs, aiming tocreate solutions that can be implementedand used

in real-worldscenarios.

Outcomes:

Fundamental Research: The outcomes are often new theories, principles,or insights that contribute to thebroader understanding ofa subject.

AppliedResearch: Theoutcomesare practical solutions, technologies, products, or methodologies that addressspecific problems orneeds.

Both types of research play crucial roles in the advancement of knowledge and innovation. Fundamental research provides the foundation for applied research, and the two often complement each other in the pursuit of scientific progress and practical solutions. Fundamental Research, Applied Research, andAction Research are distinct types of research withdifferent purposes and approaches:

Fundamental Research: Purpose: Fundamental research, also known asbasicor pure research, aims to expand our understanding offundamental principles, theories, and concepts ina particular field ofstudy.

Focus: Itfocusesonexploringtheoretical andabstractideas,oftenwithoutimmediate practicalapplications inmind.

Methods: Researchersinfundamentalresearchtypicallyconductexperiments,gather data,andanalyzeinformationtocontributetotheexistingbodyofknowledge.

Example: Discoveringthestructureof DNAorexploringthebehaviorofsubatomicparticles in physics are examples of fundamental research.

AppliedResearch: Purpose:Appliedresearchisdesignedtosolvespecific, practical problemsoraddressreal-world issuesbyusingexistingknowledge andtheories.

Focus: Itaimsto directlyapplyresearchfindingsto practicalsituations, industries, or technologies.

Methods: Researchersinappliedresearchoftenworkonfindingsolutions,optimizing processes,ordevelopingproductsbasedonexistingscientificknowledge.

Example: Developinganewdrugbased onscientificprinciplestotreat aparticular medical condition isanexampleofapplied research.

ActionResearch:Purpose: Actionresearchisamethodologyprimarilyusedinfields suchaseducationandsocialsciences.

Itspurposeistoaddressspecificproblemsor challengesinreal-worldsettings.

Focus: Itemphasizes collaborationwithstakeholders,oftenинvolvingpractitioners,to bringaboutpositivechangesinaparticularenvironmentorcontext.

Methods: Actionresearcherstypicallyengage initerative cyclesof planning, action, observation,andreflectiontoidentify andimplementpractical solutions.

Example:A schoolteacherconductingactionresearchtoimproveteachingmethodsin theirclassroom,involvingstudentsandotherteachersintheprocess,isanexample of actionresearch.

Fundamentalresearchseekstoadvancetheoreticalknowledge,appliedresearch applies existingknowledgetosolvepracticalproblems, andactionresearchisaparticipatory approachaimedataddressingreal-worldissuesthroughiterativecyclesof researchand action. Eachtype ofresearch servesdifferentpurposes and utilizes distinct methodologies.

5.9 Check Your Progress II

TRUE/FALSE QUESTIONS:

1. Action research is a systematic problem of solving practical problems through reflective inquiry.
2. Action research is commonly used by professionals to improve their practices.
3. There is no need for collaboration for action research.
4. The need for action research arises from the desire to understand

5.10 Let'sSum Up:

Action researchintheeducationalprocessisasystematicapproachwhere teachers andeducatorsengageinreflective,practicalresearchtoimproveteachingmethods, curriculum,andstudentoutcomes.Itinvolvescyclesofplanning,acting,observing,and reflecting,withthe aim of addressing specific classroomor school-related challenges and promotingcontinuous improvement.This approach empowers educators totake anactive roleinshaping theirteachingpractices, fostering aculture of learning,and ultimatelyenhancing theeducationalexperienceforstudents.

Actionresearchplaysapivotalroleintheeducationalprocess,servingasadynamicand practicalapproachtocontinuousimprovement.Itempowers educators totakeanactive stance inaddressingchallenges within their classroomsand schools,fostering aculture of self-reflection and adaptability. Action research empowers educators bygiving them the

toolsandmethodstodrivepositivechangeintheireducationalenvironments.Ite ncourages asenseofagencyandownershipoverteachingpracticesandstudentoutcome s.Action research often involves collaboration among educators, administrators, and other stakeholders.Thiscollaborativeeffortfostersasenseofcommunityandsharedres ponsibility for educational success.

5.11Keywords/Glossary

Observation – Watching and recording what happens during the intervention.

Data Collection – Gathering information (surveys, interviews, notes, etc.) to study the problem and its solutions.

Ethical Considerations – Ensuring respect, privacy, and fairness during the research process.

Empirical Evidence – Information and results based on observation or experience, not just theory.

5.12 Lesson End Exercise

1. Give an example of a specific educational issue that could benefit from action research?
2. Give one example of a problem in a school that could be solved using action research.
3. Why is working in a team important in action research?
4. What makes action research different from other types of research?
5. How can action research help improve teaching?

5.13 SuggestedReadings:

- "ActionResearch:ImprovingSchoolsandEmpoweringEducators"byCraig A Mertler This book provides a comprehensive introduction to action research in education, offering practical guidance and examples.
- "TheAction Research Guidebook: A Four-Stage Processfor Educators and School Teams" by Richard Sagor
- Apracticalguidethatoutlinesafour-stageprocessforconductingactionresearchinschools,making it accessible for educators.
- "EducationalActionResearch:BecomingPracticallyCritical"byStephen Kemmisand Robin McTaggart
- Thisbook explores thetheoretical underpinnings ofaction research ineducation and how itcanleadtopractical improvements.
- "ActionResearchforEducators"bySaraEfratEfronandRuth Ravid
- A comprehensive guide book that covers the fundamentals of action research and its applicationsineducationalsettings.
- "Participatory Action Research in Education: A Perennial Pathway of

lnquiryandAction" by StephenPreskillandStephenD.Brookfield

- Thisbookdiscussestheapplicationofparticipatoryactionresearchineducationalcontexts, emphasizingcollaborationandsocialjustice.
- "Collaborative ActionResearchforProfessionalLearning Communities" by RichardSagor
- Focusesonhowactionresearchcanbeusedwithinprofessionallearningcommunitiesto driveimprovementinschools.
- "DoingActionResearchin YourOwnOrganization"byDavidCoghlanandTeresaBrannick
- Whilenotspecifictoeducation,thisbook provides valuableinsightsintoconducting action researchwithinvariousorganizationalsettings,whichcanbeappliedtoeducationalcontexts.

LessonNo.6 UNIT-II

SCIENTIFICENQUIRYANDTHEORYDEVELOPMENT

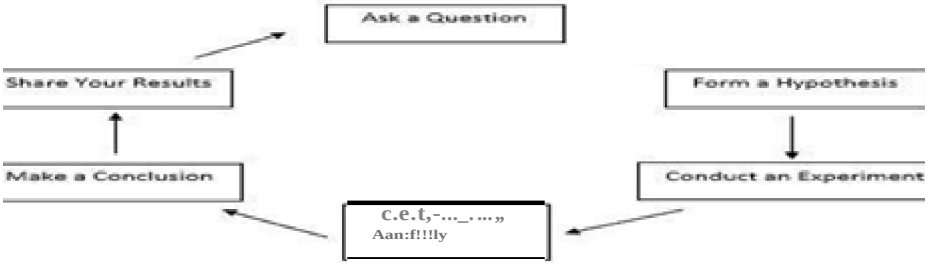
Structure:

6.1 Introduction

Scientific enquiryineducationalresearch referstothesystematic and methodicalapproach used to investigateand understandeducationalphenomena.It involves applying the principles of the scientific method to gather, analyze, and interpret data in an organized and objectivemanner.Itreferstotheresearchandstudythatscientistscarryout.Theyperfo rmallthe research and gather evidence to prove/disprove thetheory in question.The results derived fromtheirresearcharemadepublicsothatotherscanstudyaboutthatsubjectandknow thethings around theworld.Inscientific enquiry,wemake use of thetraditionalprocesses. Italsoreferstothecombination ofthese processes withcritical thinking, scientific knowledge,and scientificreasoning,which isthen used to develop scientific knowledge. Scientificenquiryusesevidencefromobservationsandinvestigationstocreatelogi cal explanations toanswer questionsrelated to science.Scientific enquiry isdifferent from the scientificmethod.Thescientificmethodfollowsalinearstep-by-stepprocessinorderto answeraquestion,whilescientificenquirydoesnotfollowalinearstep-by-stepprocess.

Scientificenquiryhelpsyouthinkoutsidetheboxtounderstandthenaturalworld.Scientifi c enquiry canbedone by:

- Engaging in science-oriented questions that challengethinking
- Giving priority to evidence when responding to questions
- Formulating explanations and answering questions from evidence
- Connecting explanations to scientific knowledgeand logic
- Communicating and justifying explanations.



Diagramaticrepresentation(Fig.1.1)

Thekeycomponentsofscientificenquiryineducationalresearchare:

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Observation: Theprocessbeginswithcarefullyobserving educational situations, events,orphenomena.
Researchers may collect data through various means, such as surveys,interviews, observations,orexperiments.

11. ResearchQuestionorHypothesis: Basedontheirobservations,researchers formulatespecificresearchquestionsorhypotheses.Thesequestionsguidethe researchandprovideaclearfocusforinvestigation.

Ill DataCollection: Researchers collectrelevantdata usingappropriatemethods andtools. Thisdatacanbequantitative (numbersand measurements)or qualitative(descriptiveandnarrative).

IV **DataAnalysis:**Once data iscollected,it isanalyzed using statistical,qualitative, or mixed- methods approaches.This analysis helps researchers identify patterns, trends,or relationshipswithinthedata.

V **Interpretation:**Researchersinterprettheanalyzeddatatodrawmeaningful conclusions. This involvesmakingsense of thefindingsin the contextof the research questionsandexistingknowledge.

VI.**PeerReview:**Toensurethecredibilityandvalidityoftheresearch,findingsare typicallysubjected topperreview.Otherexperts in thefield assess the research methods, analysis, and interpretations.

ViiPublication and Communication: Researchfindingsareoftenpublished in academic journals or presented at conferences.This dissemination of knowledge allowsotherresearchersandeducatorstolearnfromandbuilduponthereseach.

VIII. **Replication:**Scientificenquiryencouragesthereplicationofstudiesbyother researchers.Replicationhelpsconfirm thereliability offindings and contributes to theaccumulationofevidenceonaparticulartopic.

IX. **Continuous Iteration:** Scientific enquiry is an iterative process.

As new information emergesoradditionalquestions arise, researchers refine their methods andtheoriestoimproveunderstanding.

In educationalresearch,scientificenquiryisessentialfor several reasons:Itensuresthat researchisconductedinasystematicandrigorousmanner.

It allows forthe accumulationofevidence-basedknowledge, whichcaninform educational practicesand policies.

Ithelpsidentifyeffectiveteachingmethods, interventions,and strategiesfor improving educational outcomes.

It promotes critical thinking and problem-solving skills among educators and researchers. Scientificenquiryis thefoundationofevidence-baseddecision-making ineducation,helping todriveimprovementsinteachingandlearningpractices.

6.2 Learning Objectives:

Students,afterreadingthistopic, willbeableto:

1. To graspthefundamentalstepstothescientific method.
2. Tofoster criticalthinkingskillsandideas.
3. Toemphasizetheimportanceofethicalconductinresearch.

4 . Tointroducetheconcept oftheories and their rolein understanding and explaining educational phenomena.

6.3 GuidingPrinciplesofScientificEnquiry:

Theprinciplesofscientificinquiry,oftenreferredtoasthescientificmethod,guideth e process of conducting scientific research and investigations. These principles are essential forensuringthatscientificstudiesaresystematic,reliable,andcapableofproducingaccur ate knowledge. Herearethekeyprinciplesofscientificinquiry:

EmpiricalObservation: Scientific inquirybeginswiththeobservationofaphenomenon oraquestionaboutthenaturalworld.Thisobservationshouldbebasedonevidencetha t canbeperceivedthroughthesensesormeasuredobjectively.

Formulating Hypotheses: After making observations, scientists develop hypotheses or educatedguessestoexplaintheobservedphenomena.Hypotheses aretestableand specificstatementsthatcanbesupportedorrefutedthroughexperimentationandd ata collection.

DesigningExperiments: Scientists design-controlled experimentsto test their hypotheses.Inexperimentaldesign,variablesaremanipulated,andtheeffectsofthese manipulations areobservedand measured.Controls areusedto minimize

theinfluence ofvariables other thantheonebeing tested.

CollectingData: Duringexperiments,dataiscollected throughcareful observations and measurements.Thisdatashould beaccurate, reliable, andrelevant totheresearch question.

AnalyzingData: Collecteddataisanalyzedtoidentifypatterns,trends,orrelationships. Statisticalmethodsareoftenusedtoassessthesignificanceofthesefindings.

DrawingConclusions: Based ontheanalysis ofdata, scientists draw conclusions regarding thevalidityoftheir hypotheses.Conclusions should besupportedbytheevidencegathered duringtheexperiment.

PeerReview: Scientificresearchissubjecttopeerreview,whereotherexpertsinthe fieldevaluatethestudy'smethods,results,andconclusions.Peerreviewhelpsensurethe qualityandcredibilityofscientificwork.

Reproducibility: Scientificfindingsshouldbereproduciblebyotherresearchers.This meansthattheexperimentcanberepeatedbyindependentinvestigators,usingthesame methods,toverifytheresults.

OpennessandTransparency: Scientistsareencouragedtobetransparentabouttheir methods,data,andfindings.Thisopennessallowsotherstoscrutinizeandreplicatethe research.

RevisionandRefinement: Scientificknowledgeisdynamicand subjecttorevisionas newevidence emerges.Scientists areopen to modifying their hypotheses or theories based onnewfindings.

EthicalConsiderations: Ethicalprinciplesguidescientificresearch toensurethehumane treatmentofsubjects (ifapplicable),theresponsibleuseofdata, and theethical conductof experiments.

Communication: Scientistssharetheirfindings throughpublications,presentations,and conferences, contributing to the dissemination of knowledge within the scientific community and society atlarge.

These principles collectivelyform thefoundationofthe scientificmethod and areintegral to the pursuit of accurate and reliable knowledge in various scientific disciplines.They help ensure that scientificinquiryissystematic, objective, andcapableofadvancing our understandingofthenaturalworld.

6.4 CharacteristicsofScientificEnquiry:

Scientificinquiryintheeducationalprocessischaracterizedbyseveralkeyfeaturesthat distinguish itfrom other forms of learning.These characteristicsemphasize theimportance ofcriticalthinking,exploration,anddiscovery.Herearethemaincharacteristicsofscientific inquiryineducation:

QuestioningandCuriosity: Scientificinquirybeginswithquestionsandcuriosity

about thenatural world. Students areencouragedtoask"why" and "how" questions,whichdrive thelearning process.

Empiricaland Evidence-Based: Itisbased onempirical evidence andobservations. Students learntogather data through experiments,observations,and measurements rather thanrelyingsolelyontheoreticaloranecdotalinformation.

HypothesisFormation: Students formulate hypotheses, which areeducatedguesses or explanationsforobservedphenomena.Thesehypothesesaretestableandserveast he startingpointforinvestigations.

ExperimentalDesign: Scientific inquiryinvolves designing experiments totest hypotheses.
Studentslearntocontrolvariables,developprocedures,andconductexperimentsi na systematicandrigorousmanner.

Data Collection and Analysis: Students collect and analyze data generated during experimentsor observations. They use statisticaltools and critical thinking to draw conclusions fromthedata.

Critical Thinking: Criticalthinkingskillsarecentraltoscientificinquiry.Students evaluate evidence,identify biases, andassessthevalidityoftheirfindings andthework ofothers.

Problem-Solving: Scientific inquiry promotes problem-solving skills. Students encounter challenges and obstacles during investigations and must find creative solutions to overcome them.

Collaboration: Collaborationisoftenencouragedinscientific inquiry.Studentsworkin groupstoshareideas, planexperiments,andanalyzeresults,fosteringteamworkand communicationskills.

Communication: Studentsareexpected tocommunicatetheirfindingsthroughvarious means,suchaslab reports,presentations, and discussions.This helpsthem articulate their ideasand share knowledge.

Reproducibility: Scientific inquiry emphasizes the importanceof reproducibility. Results shouldbereplicablebyothers, reinforcingthereliabilityofscientificfindings.

Open-Mindedness: Studentsareencouragedtobeopen-mindedandwillingtorevise theirhypotheses orconclusionsinlight of new evidence. Thisreflectsthedynamic natureof scientificknowledge.

EthicalAwareness: Ethicalconsiderationsareintegratedintoscientificinquiry.Stu dents learnaboutresponsibleresearchpractices,includingthetreatmentofsubjects,dataintegri

ty, andtheethicalimplicationsoftheirwork.

Real-World Applications: Scientific inquiry is often connectedto real-worldapplications, demonstratingthe relevance ofscientificknowledge in solvingpractical problemsand advancingsociety.

LifelongLearning: Scientificinquiry instillsa lifelonglearning mindset,encouragingstudentstocontinue askingquestions,exploring,and seekinganswersthroughouttheirlives.

Thesecharacteristicscollectivelycreateastructuredandrigorousapproachtolearning that encourages students to actively engage with the natural world, develop critical skills, andcontributetotheadvancementofscientificknowledge.

6.5 Check your Progress-I

1. What is the primary objective of scientific enquiry?

2. What is the role of empirical evidence in scientific enquiry?

3. What is the role of observation in scientific enquiry?

6.6 Concept ofTheoryDevelopment:

Theorydevelopmentineducational researchistheprocessofcreating, refining, and articulatingtheoreticalframeworksormodelsthatexplain,predict,orguideeducational phenomena.Thedevelopmentoftheoriesineducational researchiscrucialforseveral reasons:

- **UnderstandingComplexity:**Educational settingsareoftencomplex, involving variousfactors,interactions,andvariables. Theorieshelpresearchersandeducators make sense ofthiscomplexity by providingastructured framework for organizing andinterpretinginformation.

- **Predictive Power:** Well-developedtheoriescanmake predictions about how certaineducationalinterventions,practices,orpolicies arelikelytoimpactlearning outcomes.Thispredictivepowerisvaluablefordecision-makingandplanning.

- **GuidingResearch:** Theories provide aroadmapforresearch bysuggesting hypotheses,variables toconsider,andrelationshipstoinvestigate.Theyguide researchersin designingstudiesandselectingappropriatemethods.

- **EducationalImprovement:**Theoriesineducationalresearchcaninformthe developmentofeffective teaching strategies,curriculum design, and educational interventions.Theyserveasafoundationforevidence-basedpractices.

6.7Stepsof Theory Development:

Thekeysteps involved in theory development in educational research:

- **IdentifyaResearchProblem:**Theorydevelopmentbeginswithidentifying a specificeducationalissueorproblemthatneedstheoreticalexplanation.This problemoftenemergesfromobservations,literaturereviews, orpractical concerns ineducation.
- **LiteratureReview:**Researchersconductathoroughreviewofexistingliterature tounderstandwhatisalreadyknownabouttheproblem.Thishelpsidentifygaps inknowledgeandinformsthedevelopmentofanewtheory.
- **ConceptualFramework:** Researchers create aconceptual framework that outlines thekeyconcepts,variables,andrelationshipsrelevanttotheresearchproblem. Thisframework servesastheinitial structureforthetheory.
- **DataCollection andAnalysis:** Empirical dataiscollectedthrough research methodssuchassurveys,experiments,observations,orinterviews.Researchers analyzethisdatatotestandrefinetheconceptualframework.
- **TheoryBuilding:**Asdataaccumulatesand isanalyzed,researchersmodifyand expandtheconceptualframeworktobetterexplaintheobservedphenomena. Thisiterative processinvolves refining thetheory based onempiricalevidence.
- **Validation:**Thedevelopedtheoryissubjectedtofurtherresearchandtesting to validate itsvalidityand applicability across different contexts. Replication studies andadditional evidencecontributetotheoryvalidation.
- **Communication:**Researcherspublishtheirtheoriesandfindingsinacademic journals, present thematconferences, and sharethemwiththeeducational community.This dissemination of knowledge encourages discussion and further development.
- **RevisionandIntegration:** Overtime,theories mayberevised andintegrated withothertheoriestocreatemorecomprehensiveframeworksthatencompassa broaderrangeofeducationalphenomena.

6.8 Need:

Theorydevelopmentineducationalresearchisessential forseveralreasons,asitserves variousneedswithinthefield:

Explanationand Understanding:Educational theories provide frameworks for explaining complexeducationalphenomena,suchaslearning, teaching, and student development. They help researchers and educators understand why certain practices or processes occur and howtheycan beimproved.

Guidance for Practice: Theories in education offer guidance for educators and practitioners bysuggesting effective teaching methods,strategies, and interventions. They provide evidence- based approachesforimprovingeducational outcomes.

Predictionand Control: Well-developed theories enable researchers to make predictions about future educational trends and outcomes.This predictivepower allowsfor proactive decision-makingandinterventionplanning.

ResearchDesign: The**o**ries serve as a foundation for designing research studies.Researchers use existing theories toinform their research questions,hypotheses,and methodologies. Thisensuresthatresearchisgroundedinestablishedknowledge.

IntegrationofKnowledge: Thedevelopment oftheorieshelpsintegrateknowledge from variousdisciplinesandresearchareas.Educationalresearchoftendrawsoninsights frompsychology,sociology,neuroscience,andotherfields,andtheoriesprovidea frameworkforsynthesizingthisinformation.

ProblemSolving: Educational theories provide toolsforaddressing educationalchallenges andproblems systematically. They offer abasis for problem-solvingand decision-making ineducationalcontexts.

Policy Development: Educationaltheoriesinfluencethedevelopmentofeducational policies andpractices. Policymakers use theories toinformtheir decisionsabout curriculum development,standardized testing,teachertraining, andmore.

ContinuousImprovement: Theoriesencourageacultureofcontinuousimprovementin education.Theyserve asafoundationforevaluating and refining educationalpracticesand programs.

Evidence-Based Practice: Theories promote evidence-based practice ineducation. Educatorscanusetheoriestoassesstheeffectivenessofteachingmethodsandinterventions andmakeinformeddecisionsabouttheirinstructional approaches.

Communicationand Collaboration: Thedevelopment and useoftheoriesfacilitate communication and collaboration among educators, researchers, and policy makers. They

provideacommonlanguageandframeworkfordiscussingeducationalissues.

ResearchAgenda: Theorieshelpshapetheresearchagendaineducation.Theyhighlight areaswherefurtherresearchisneededtorefineorexpandexistingtheories,addressing gapsinknowledge.

ProfessionalDevelopment: Educatorscanusetheoriestoinformtheirownprofessional developmentand enhance their teaching practices. Theories provide abasisfor reflective teachingandongoinglearning.

Accountability: Theories contribute to accountability in education by providing bench marks and standards against whicheducationalpracticesand outcomescanbeassessed.

Theorydevelopmentineducationalresearch isessential foradvancing thefield, improving educationalpractice,andensuringthateducational decisionsareevidence-basedand effective.It provides astructured framework for understanding, analyzing,and addressing thecomplexchallengesandopportunities ineducation.

Theorydevelopment in educational research is anongoinganddynamic process, essential for advancing thefield and improving educational practices. It enables educators and policymakerstomake informed decisions based on asolid theoretical foundation.Indeed, scientificinquiry andtheorydevelopmentineducationalresearcharecloselyintertwined andoftengohandinhand.Belowishowtheyareinterconnected:

ObservationandProblemIdentification: Bothscientificinquiryandtheorydevelopment startwiththeobservationofeducationalphenomenaorproblems.Researchersidentify areasineducationthatrequireinvestigationortheoreticalexplanation.

Hypothesis or Research Questions: In scientific inquiry, researchers formulate hypotheses orresearch questions toguidetheir investigations. These questions often relate tothedevelopmentortesting oftheories.Theformulationofthese questions isan essential part of both processes.

DataCollectionand Theory Testing: Scientific inquiryinvolves collecting empiricaldata totesthypothesesoranswerresearch questions.Thisdatacanalsobeused toevaluate andrefineexistingeducationaltheories ordevelopnewones.Thedatacollectedduring inquiryprovideevidencefororagainsttheoreticalpropositions.

Theory Building and Refinement: As data accumulates through scientific inquiry, researchers may find that existing theories need to be

refined or that new theories must be developed to better explain observed educational phenomena. In this way, theory developmentisoftenanoutcomeofthedatacollectedduringtheinquiry.

InterpretationandConclusion: Scientificinquiryrequirestheinterpretation ofdatato drawmeaningfulconclusions.Researchers interprettheirfindings withinthecontextof existingtheoriesordevelopnewtheoreticalframeworkstoexplaintheobservedpatterns orrelationshipsinthedata.

Communicationand Dissemination: Researchers communicate their findings and theories throughpublicationsandpresentations,contributingtothebroadereducationalresearch community.Thisdissemination ofknowledge facilitates discussion and further refinement ofbothresearchmethodsandtheoretical models.

ValidationandFurtherResearch:Boththeorydevelopmentandscientificinquiryben efit fromvalidationthroughreplication andadditionalresearch. Replication studiesconfirm the reliabilityoffindingsandtherobustnessoftheories.

In essence,scientific inquiry provides the empiricalbasis for testing, validating,and evolving educationaltheories. It isthrough systematic observation and rigorous data collection that theoriesineducational research gainsupportand become morerefinedovertime. The iterative nature ofthese processes ensures that educationalresearch remains dynamic and contributestotheadvancementofknowledgeinthefield.

6.9 Check Your Progress: II

1. Define scientific enquiryand how it is applied in educational research?
2. Discuss the process of theory development in the context of educational research?
3. What are the ethical considerations in conducting educational research?
4. How does theory development in educational research evolve overtime?
5. What is the significance of employing a scientificapproach in educational research?

6.10 Let's UsSum Up:

Scientificenquiryand theorydevelopmentineducationalresearchinvolveapplying rigorous scientificmethodstoinvestigateeducationalphenomenaandconstructtheoriesthat explain and predict thesephenomena. Researchers collect data, analyze it, and use the findings to refineordevelop theoriesabout howeducation works. Thisprocess helpsimprove educationalpracticesandpoliciesbyprovidingevidence-basedinsights.

Itbeginswith identifying specificquestions orproblemswithintherealmofeducation thatwarrant investigation.Researchers aimtoformulateclearandprecise research questionsthat are relevanttoeducationalpracticeandpolicy.Educationalresearchisoftenaniterativeproce ss. Newfindings may lead to revisions ofexisting theories orthe developmentofentirely new ones. This ongoing cycle ofresearch and theory developmentcontributes tothegrowth of knowledgeinthefield.

Scientificenquiryand theorydevelopmentineducationalresearchareessential forenhancing educational outcomes, addressingchallenges andadaptingtoevolvingeducational landscapes.

6.11Keywords/Glossary

- **Hypothesis**

A hypothesis is a possible answer or explanation to a question or problem. It is a statement that can be tested through research or experiments.
Example: "If students study for 30 minutes each day, their test scores will improve."

- **Experiment**

An experiment is a test or investigation carried out to see if a hypothesis is true. It involves carefully planned steps and often includes changing one thing to see how it affects something else.
Example: A teacher tries two different teaching methods to see which one helps students learn better.

- **Data**

Data are the facts, numbers, or information collected during an experiment or research. Data can be in the form of surveys, test scores, observations, or measurements.
Example: The scores from a math test after using a new teaching method.

- **Analysis**

Analysis is the process of studying the data to find patterns, relationships, or results. It helps researchers understand whether their hypothesis was correct or not.
Example: Comparing test scores before and after the experiment to see if students improved.

6.12. Lesson End Exercise

True/False

1. Scientific enquiry is based on observable evidence.
2. A hypothesis must be testable and falsifiable.
3. Personal opinions are considered valid scientific evidence.

6.13 SuggestedReadings

- Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research" byJohnW. Creswell and Creswell J.David
- "EducationalResearch: An lntroduction "byMeredith 1 . D.Gall,JoyceP.Gall,and WalterR.Borg"EducationalPsychology: DevelopingLearners" byJeanneEllisOrmrod
- "TheSage Handbook of Educational Leadership: Advances in Theory, Research, and Practice" edited byFenwick W. English andLaura M. Dawson
- "QualitativeInquiryand ResearchDesign: ChoosingAmongFiveApproaches" byJohnW.
- Creswell"Educational Theory: An lntroduction"byDavid Turner and RoyLowe
- "TheoriesinEducational Psychology:Concise Guide" byPatriciaAlexanderandRichardE.Mayer
- "Foundations of Education Research: UnderstandingTheoretical Components" byJoy Egbert and Sherry L. Carnahan.

LessonNo.7 **Unit-II**

RESEARCHPROBLEM

STRUCTURE

7.1 Introduction

Research isa constant and continuous venture towards the discovery of acts. Before pursuing anydiscovery aresearcherneedsto identifythe research problem. In fact,the entireprocess ofresearch isbased onthe proper identificationoftheresearch problem. It isnot possible to provide an adequate solution to the problem unless the researcher identifies the problem in correct and precise terms. No, doubt figuring out the researchproblemtakesconsiderable timeandeffort. Choosing aproblemforresearchis consideredadifficult and technical taskonthe part oftheresearcher. Itrequiresadetailed andin-depthreviewoftherelatedliteratureto selectaproblemforstudy. Basically,the researchprocessisregarded asacyclethatbeginswiththeidentificationoftheproblemendsonthesolutionoft heproblem.

7.2 Learning Objectives

Afterreadingthislesson,youshallbeableto:

- defineresearchproblem
- identifytheimportantpointsfortheselectionoftheresearchproblem
- describetheimportantsourcesfortheselectionoridentification ofresearchproblem

7.3 Meaning of Research Problem

Researchproblem isaspecific andwell-definedissue or question that aresearcher seekstoinvestigatethroughresearch.Itisthestartingpointofany researchproject,asit setsthedirection,scope,andpurposeofthestudy.So,theissueortopicthataresearcher wantstoexplorethrough researchisknownasaresearch problem. Itisthefocusor reasonforengaginginresearchwork.Anyresearchworkmustbeginherebecaus eit establishes theinvestigation'spath, parameters,andgoals.

JohnW.Creswell:"Research problem isaneducational issue, controversy,or concern that guidestheneedforconductingastudy."

Kerlinger:"Researchproblemisaninterrogativesentenceorstatement thataskswhat relation exists between two or more variable.The answer to question

will provide what is havingsoughtintheresearch."

R.A.Woodworth:"Researchproblemis asituationforwhichwehavenoreadyand successfulresponsebyinstinctorbypreviousacquiredhabit.Wemustfindoutwhattodo i.e. asolutioncanbefoundoutonlyafteraninvestigation."

F.J. McGuigan:"A solvable problemisonethat possesses aquestion thatcanbeanswered withtheuseofman'snormalcapacities."

C.R. Kothari:"The problemfelt bytheresearcher inrelationtothetheoretical or practical aspectforwhichhedesiredtohaveasolutioniscalledaresearchproblem."

Thus,specifying aresearchproblem inastudyisimportantbecause it setsthestageforthe entirestudy.Without knowingtheresearchproblem,readersdonotknowwhythestudy isimportantand whythey should read thestudy.Basically,research problem isthetopic a researcher would like to address, investigate, or study, whether descriptively or experimentally.

7.4 SelectionofResearchProblem

Just because aproblem exists and an author can clearly identify theissue does not meanthat theresearcher can or should investigateit. The research problem undertaken for studymustbecarefullyselected.Fallowingpointsmaybetakenintoaccountbyaresearche r whileselecting aresearch problemforconducting research.

1. **Personalinterest:**Research processrequiresalotofhardworkandisusually time-consuming.Thepersonalinterestoftheresearcherintheareaofresearch helpsinsustainingnecessarylevelsofperseveranceandmotivation duringthe course of research.
2. **Availabilityof resources: Availability** ofresourcesisa majorfactor in research. Aresearchproblemshouldbe selectedkeeping inviewtheresourcesavailable. Resources like money, time, accommodation, awell-equipped library and laboratory, transportation etc. shouldbe taken into consideration while selecting a research problem.
3. **Dataavailability:** Researcher shouldmakesurethatthedatapertainingtoa researchproblem isavailable.Itisimportanttoensurethattherelated literature likejournals,reportsoranyother kind ofdesireddataisavailablebeforefinalizing thetopic.
4. **Relative importance and relevance:** Theimportance or significance ofthe problemplaysavitalroleintheselectionofresearchproblem.Theoutcome of the researchshould beuseful forthesociety.It shouldmake asignificantcontribution to the concernedbody ofknowledgeortothe solution ofsome existingproblems. Itshouldbesociallyrelevant.

5. **Expertise:** Theresearchershouldhavenecessaryknowledgeforconducting research.Thewisdomandexperienceoftheresearcherplayaveryimportant role in collecting and analyzing data. Aresearcher must possess adequate knowledge of thesubject-matter, research methodology and statistical procedures.

6. **Ethicalissue:** Researchershouldalsoconsidersomeethicalissueswhileselecting research problem. Certain ethical issues like privacy of subjects, security, confidentiality,informedconsent, potentialforharmetc.shouldbeadheredto ensurevoluntary,informedandsafeparticipationofsubjectsinresearch process.

7. **Time-lines oftheproblem:** Someproblemstakelittletimeforitssolutionwhile otherstakemoretime.Researcherisrequiredtosetaclear-cuttimeline.Ithelps theresearchertosetclearprioritiesanddirectionssothatthevariousaspectsof the research problem are completed intime.

8. **Research abilityofthe problem:** The problem should beresearchable through scientificinvestigation.Problemsshouldinvolvevariableswhichcanbeprecisely defined and measured.

7.5 CheckYourProgress-I

Note:(a)Writeyouranswersinthespacegivenbelow.

(b)Compareyouranswerswiththosegivenattheendofthelesson/abovesub-section.

1. Fillintheblanks

Research problem is a _____thataskswhatrelationexistsbetween two or more variable.

Research problem isaspecific andwell-definedissue or question that aresearcher seeks to _____through research.

Research problemisa _____forwhichwehavenoreadyandsuccessful responsebyinstinctorbypreviousacquiredhabit.

Availability of_____isamajorfactorinresearch.

Professional experience ofa_____ isanimportant sourceof identifying a research problem.

2. Define thetermResearchProblem

3. IllustratethepointstobekeptinmindwhileselectingaResearchProblem.

4. MentionthemajorsourcesofResearchProblem

7.6 SourcesofResearchProblems

The choice of a suitable problem is always a difficult task on the part of the researcher.It isveryimportantto identifyaresearch problemthatisrelevant, original, unique andfeasible; moreover that does not simply duplicate thework ofothers. So, how doyou find agood research problem? Thefollowing discussion will helpyou to discover and refineyour research problem:

1. **ReviewofRelatedLiterature.**Reviewof relatedliteratureisoneofthemain sourcesofresearchproblem. Itprovidesthemuchneededinformationto determine whathasalreadybeen studied inrelationto theproblemthatistobeinvestigated. It includes journals and periodicals, books, magazines and newspapers, e-Sources, dissertations, doctoral theses, conference proceedings and papers, monographs and many more. After going through the related literature, the investigator canidentifytheproblemsorvariables related to thataspect where no researchhasbeenconductedtilldate.Itiswellsaidthatthedatacollected from relevant literatureisquitesignificantbecauseithelpsto:

- Fillexistinggapsinknowledgebasedonaspecificresearch.
- Determineifcurrent studiescanhaveimplications onfurther researchonthesame issue.
- Explore the possibility toconduct a similar study ina different areaor apply the same in a different context.
- Determineifthemethodsusedin previousstudies canbeeffectiveinsolvingfuture problems.

Avastliteratureisavailablewhichcanbesearchedelectronicallyorma nuallyto identifyaresearchproblem.

Itisacommonobservationthatsearchinganonlinedatabase isfarmoreeasyandefficient thansearching stacksofjournalsinthelibrary.

2. **Personalexperiences:**Everydayexperiencesoftheresearcherareagoodsource ofresearchproblem.Aresearcherhastothinkcritically abouthis/herpersonal experienceswithanissuethathasaneffectonhis/herfamily,personallife, or communityatlarge.A researchproblemderived frompersonalexperiences can springfromanyissueandfromanywhere.Forexample,youcanconstruct a research problem fromevents that appear tobeout oftheordinary orfrom communityrelationships thatdon't haveclear explanations.

3. **Professionalexperience:**Anotherimportantsourceof identifyingaresearch problemisthe professionalexperienceofaresearcher.Forexample, ifresearcher isateacher,counsellor or administratororworking in any organisation,heor she mustbeconfrontedwithanumberofproblemsinhis/herday-to-day academic andnon-academicactivities.Classroominteractionbetweenteacherandtaught, betweenlearnersthemselves,andbetweenlearnersandlearningmaterials may provideavarietyofproblemstobesolvedthroughresearch.Teachersconfront a numberof behaviouralproblems inand outsidetheclassroomtotakeupasresearch problems.Observationof learnerbehaviourintermsofacademicachievement, interests,attitudes,intelligence,mentalhealthandhygiene, adjustment, motivation, values,personality traitsetc. inspire theresearcher to conductresearch toimprove theteaching-learningprocess.Theresearchermaywishtogetanswerstocertain importantand significantquestions pertaining to certain components ofthe teaching-learningprocess.Whataretheeffectivemethodsofteaching?Howarelearning materialspresented?Howtohelpthestudentstomanagestress?Whatarethe ways and means to enhance learner's motivation?How differentmodesand styles ofteachingaffectstudentlearning?

4. **Interdisciplinary perspectives: The** word interdisciplinary refers to the involvementofmorethanonediscipline,whichisdefined asafield ofstudyora branchofknowledge.Identifyingaproblemthatformsthebasisforaresearch studycancomefromoutsidetheprimaryareaofstudy.Areview ofpertinent literaturefromrelateddisciplines canexposetheresearchertonewavenues of explorationandanalysis.Aninterdisciplinaryapproachtoselectaresearch problem offers anopportunity to constructamore

comprehensiveunderstandingofavery complexissuethananysingledisciplinemightprovide.Thisapproachhelpsthe researchertodevelopacomprehensiveunderstandingwhileselectingaproblem for investigation. By incorporatingdifferent viewpoints from various branches of knowledge,aresearchercancreatenewperspectivesorevennewdimensionsof knowledgenotyetconsidered.

5. **Technologicalandsocialchanges:**Thenewinnovationsandtechnological changesareconstantlypavingthewayfornew problemsandnewopportunities foreducationalresearch.InnovationslikeSmartClassrooms,MOOCs, Online Learning, e-Learning, Blended Learning, Learning ManagementSystemoruseof ArtificialIntelligenceandotherhardwareandsoftwaretechniquesneedto be carefullyevaluatedthroughtheresearchprocess.Significantelements,such has finance, legal issues, scaffolding, learner connection, and alignmentwithlearning aims,allserveasasourceforselectingaresearchproblem.Wehavealready noticedthattheCOVID-19outbreakaffectedteaching-learningopportunitiesin allrespects.Muchofthecurriculumhasbeenadaptedtoanonlineformat,the long-termconsequencesofwhich areyetto berecognized.Theshifthasimpacted bothteachersandlearnerstoagreatextent.A systematicapproachisrequiredto studythisimpactofonlineteachingonlearningoutcomes,incomparisontothe previousformat,where,inpersoneducationmayhavebeenthefocus.

6. **Discussionwiththesupervisor:**Themostpracticalsourcefortheidentification oftheresearchproblemistheconsultationwiththecourseinstructororresearch supervisor.Supervisorisregardedasthemostexpertandexperiencedperson of thefield.Thesupervisorcandiscuss certain issuesoftheareatoemergeaproblem. Hecandirecttheresearchertoproceedalongproper lines, wherevernecessary. Hecanguidethestudentstoselectappropriateprojects andmustencouragethe students toaim at completion.Heisexpected to bein abetterposition to help the studentsclarifyingtheirthinking,achievingasenseoffocusanddevelopinga manageableprobleminprecisemanner.

7. **Theory-based research:** Different theories advocated by

psychologists, sociologists,anthropologists,economistsetc.serveasasourceof identifyingthe research problems.For example, theapplication ofgeneral principles involved in varioustheoriesof learningmakes anexcellentstartingpoint forresearch inthis area.Varioustheoriesofpersonality,intelligence,motivation,etc.arehelpfu lin identifyingproblemspertaining toclassroom situations and practices. Researchers cansuccessfullytestthevalidity,scope,andclassroomimplicationsofvari ous theoriesineducationalsituations. Sometimes research isconductedtoclarifyvarious theoreticalissues.

8. **Seminars and conferences:**Seminars andconferences organised atstate, national orinternationallevelindifferentsubjectareasalsoserveasarichsource ofselecting researchproblem.Intheseseminarsandconferences,theresearcherspres ent theirpapersrelatedtothethemeandsub-themesoftheseminarorconference.It provides valuable exposure to the researcher to learn about cutting edge research, meetnewpeople,andbuild strongprofessionalrelationships withthepeople already engagedintheprocessofresearch.Onemaygetinterestedinideapresent ed throughthepaperandthinkofconducting research.

7.7 CheckYourProgress II

a) A research problem is a **statement** that asks what relation exists between two or more variables.

b) Research problem is a specific and well-defined issue or question that a researcher seeks to **investigate** through research.

c) Research problem is a **situation** for which we have no ready and successful response by instinct or by previously acquired habit.

d) Availability of **resources** is a major factor in research.

e) Professional experience of a **researcher** is an important source of identifying a research problem.

7.8 Let UsSumUp

Oneofthemostchallengingaspectsofconductingresearchistoclearlyidentify theproblemthat leadsto aneedforconducting study.Individuals do not seemto give enoughattentiontowhytheyareconducting their studies.Educationalresearchisdoneto bring better solutions inthefield ofeducation. It aims toprovide better teaching and learningtechniqueswhichwillhelpintheoveralldevelopmentofchildren.Resear chis essentialtogivethebesteducationtochildren.Itprovidesthemwithusefulandrelia

ble knowledge andfactsmaking education moreeffective. Thus, research problem isone requiresaresearchertofindoutthebestsolutionforthegivenproblemthatistofindout bywhichcourseofactiontheobjectivecanbeattainedoptimallyinthecontextofagiven environment.

7.9 Keywords/Glossary

Research Problem	A clearly defined issue or question that forms the foundation of a research study, guiding the investigation's direction, scope, and purpose.
Personal Interest	The researcher's enthusiasm or curiosity toward a topic, which sustains motivation and commitment during the research process.
Review of Related Literature	An in-depth analysis of previously published materials to identify gaps, validate topics, and frame the research problem accordingly.
Interdisciplinary Perspective	The integration of knowledge and methods from different fields to identify and study complex research problems more holistically.
Ethical Issues	Considerations related to informed consent, privacy, confidentiality, and the safety of participants during the research process.
Professional Experience	Insights and problems identified through a researcher's work or practice in a specific field, often forming the basis for relevant research topics.
Theory-Based Research	Research guided by established theories to test their application, explore their implications, or refine them in a specific context.

7.10 Lesson End Exercise

1. DiscusstheconceptResearchProblem.
2. Elaboratethevariouspointsrelatedtotheselectionofaresearchproblem.
3. Illustratethemajorsourcesof ResearchProblem.

7.11 SuggestedReadings

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LessonNo.8

Unit -II

EVALUATIONOFRESEARCHPROBLEM

STRUCTURE

8.1 Introduction

Researchers begin astudybyidentifying a research problem thatthey needto address.Beforedesigning andwritingabouttheproblem, researchersneedto consider whether itcanand should bestudied. Theresearcher must haveaccessto peopleand sites and possess the time, resources, and skills to study the problem. The study needs to contributetoknowledge andpractice. Therealsoneedsto beamatchbetweentheresearch problemandthe approach-quantitativeor qualitative-chosenforthestudy.Researchis morethancompiling,counting andtabulating data. Itinvolves deducingtheconsequences ofhypothesis throughcareful observation andthe application ofrigorouslogic.It isa serious responsibility tocommit oneself toaproblem that willinevitably require much time andenergyandthatissoacademicallysignificant.

8.2 Learning Objectives

Afterreadingthislesson,youshallbeableto:

- explainthecriteriaforevaluationofresearchproblem
- delineatevariables
- operationalizevariables

8.3 CriteriaForEvaluationofResearchProblem

Evaluationoftheproblemisveryessentialafterchoosingtheresearchto pic.

Evaluationwillhelpindoingsystematicandorganizedresearch.Individuals donot seemto giveenoughattentiontowhytheyareconductingtheirstudies.Justbecause aproblem exists and an author can clearly identify theissue doesnotmean that theresearcher can or shouldinvestigateit.A researchproblemshouldbeeasilyachieved,solved,oranswered bytheresearcherafterallvalidprocedureshadbeencarriedout.However, following pointslaycriteriafortheevaluationoftheresearch problem:

1. Problemshouldberesearchable

Itmustbeensuredthattheproblemisresearchable.Therearecertainproblems thatcannotbeeffectivelysolvedthroughtheprocess of research.Aresearchable problemisalwaysconcernedwiththerelationshipexistingbetweentwoormore variablesthatcanbedefinedandmeasured.Theproblemshouldbecapable of beingstated intheformofworkableresearchquestionsthatcanbeanswered empirically

2. Problemshouldbenovelandoriginal

There isno use in studyinga problemwhich hasalreadybeen adequatelyinvestigated byotherresearchers.Toavoidsuchduplication,itisessentialtoexaminevery carefullytheliteratureavailableinthefieldconcerned.Theproblemshould be selectedonlywhentheresearcherisconvincedthatitisreallyanewproblem which hasnever before beeninvestigatedsuccessfully.However, it must benoted thataresearchermayrepeatastudywhenhe/shewantstoverifyitsconclusions ortoextendthevalidityof itsfindingsinasituationentirelydifferentfromthe previousone.

3. Problemshouldbesignificant

Theproblemshouldattempttofillthegapsintheexistingfieldofknowledge.It shouldstrivetosolvesomeoftheinconsistenciesinthepreviousresearch,orto helpintheinterpretationoftheknownfacts.Theresultsorfindingsofastudy shouldeitherbecomeabasisforatheory,generalizationsorprinciples.Besides, theyshouldleadtonewproblemsforfurther research orhavesomeuseful practical applications.

4. Problemshould beattainablewithinthebudgetandtimeframe

Ensurethattheresearchactivityisattainablewithinthebudgetandtimeframe. Researchers need toconsider thelogistical factorstoensure successfulcompletion ofresearch.Losingoutontheresearchduetothelackofmoneyandmanpower tocompleteitwithinaspecifiedtimeframewillbeasheerwasteoftime.So, researchers should consider thetime allotment fortheir research and should think ofaresearch problem that couldbecarriedout inthegiven time period. Moreover,

researchersneedtocreateabudgetandobtainadvicefromother,experienced researchers about whether the anticipatedexpenses are realistic. Keeping inview thevariousresource requirements, investigatorsneedtolimitthescopeofresearch.

5. Problemshould bemeasurable

Theresearchproblemshouldbequantifiableorobservable.Thismayinclude interviews,surveys,questionnairesorrecordedobservationssuchasvideos and audio recordings. Researchersare required to think about theinstruments that will helpthemtocollectdatafromtheirrespondents.Thereisaneedtoexplorethepossibilitytoperformtheexperimentationsorobservationsneededtosolvetheir problems. Afteridentifyingaresearchproblem,researchersshouldalsoconsider if itbetterfitsaquantitativeorqualitativeapproach.Becausethetwoapproaches differintheiressentialcharacteristics,thereshould beamatchbetweenproblem identifiedandtheapproachadoptedfortheinvestigation.

6. Problemshouldbefeasibleforthepartic ularresearcher

Pursue only the problems that are feasible. Otherwise, a problem may be researchable,neworsignificant,andyet notfeasiblebecauseofthefollowing considerations:

a) Competency oftheresearcher:The problem should beinanareainwhichthe researcherisqualifiedandcompetent.He/shemustpossessthenecessaryskills andcompetenciesthatmaybeneededtodevelop andadministerthedatagathering tools, andinterpret thedataavailableforanalysis.

b) Knowledgeofresearchmethodology: Theresearcher shouldalsohavethenecessary knowledge ofresearchdesign, qualitative and quantitative techniques ofdata analysisetc.thatmayberequired to carryouttheresearchto itscompletion.

c) Interest andenthusiasm: Theresearcher should begenuinelyinterested inand enthusiastic abouttheproblem he/shewantsto undertakeforresearch.

d) Financial considerationsandfeasibility:Theresearcher should ascertainwhether he/she hasthenecessary financial andtemporal resourcesto carryonthestudy. It isimportantto estimatethecost

oftheproject and assesstheavailabilityoffunds. Thiswilldeterminewhethertheproject canbeactuallyexecuted.

e) Administrativeconsiderations: Theresearcher should also consider the nature of data,equipment,specialisedpersonnel,andadministrativefacilitiesthat areneeded tocomplete thestudysuccessfully. He/sheshould checkwhether he/sheisableto get the cooperation from various administrativeauthorities for collecting various types ofdata.

f) Time:Itisimportanttoassessthetimerequired tocompleteastudy.Besidesthe assessment oftotal period, itisnecessary to identify the period ofthe yearin relation to thenature ofthestudy.

g) Risk management:Theabilityoftheresearcherto identifyandmanageallpossible risks that may beinvolved inthe research isavery crucial factor.Special risks, threatsandhandicapsorcostofphysical,financial, personal,socialorprofessional charactermayariseanytimethatmayhaveanegativeimpactontheresearch.

8.4 Delineating of Variables

Avariableisacharacteristicorattributeofanindividualoranorganizationth at researcherscanmeasureorobserveandcanvaryamongindividuals orassumedifferent valuesorscoresfordifferentindividuals.Theyarekeyideasthatresearcherssee kto collectinformationontoaddressthepurposeoftheirstudy.

Creswell(2012)definescharacteristicsof individuals aspersonalaspectsaboutthem, suchastheirgradelevel,age,orincomelevel.Anattribute,however,representshowa n individualorindividuals inanorganization feel, behave, orthink.Forexample,individuals haveself-esteem,engageinsmoking,ordisplaytheleadershipbehaviourofbeingwell organized.Aresearchercanmeasuretheseattributesinastudy.

Next, consider what it meansto"measure"these attributes orcharacteristics.Measurement meansthattheresearcher recordsinformationfromindividualsinoneoftwoways:

- Askingthemtoanswerquestionsonaquestionnaire(e.g.,astudentcompletes questionsonasurveyaskingaboutself-esteem)
- Observing an individual and recording scores on alog or checklist (e.g., a researcherwatchesastudentplayingbasketballandrecordsscoresondribbling techniques)Ineithercase,student scoreswillprobablyvary(hencethename

variable).Whenvariablesvary,itmeansthatscoreswillassumedifferentvalues dependingonthetypeofvariablebeingmeasured.Forexample,

- Gendervariesbytwopossiblescores:female=2andmale=1.
- Self-esteemvariesbythreepossiblescores:High=3,average=2,andnegative=1

Thus,delineatingofvariablesisconsideredaveryimportantpracticeinresearch process.Delineationmeansdescription,explanation,demarcationoroutlining.Tocarry out a study, it becomes imperativetodelineate thevariables.Delineationofvariables in a study requires learning the definition ofeachtype ofvariable and understandingits role in providing direction for a study.Different types ofvariables incorporatedinto quantitative purposestatements,researchquestions,andhypothesesarediscussedasunder:

IndependentVariables

Anindependentvariableisanattributeorcharacteristicthatinfluencesoraffects anoutcomeordependentvariable.Inresearchstudies,theindependentvariablesareals o calledasfactors,treatments,predictors, determinants,orantecedentvariables. Researchers study independentvariables to see what effect orinfluence they have onthe outcome.For example,considerthisresearchquestion:

Dostudentswho spend more instructional time inclasshavehigher academicachievement thanstudentswhospendlesstime?Inthisexample,independentvariableis instructional timeinclass anddependentvariableisacademicachievement

Dependentvariable

Adependentvariable is an attributeor characteristic that isdependentonor influencedby theindependentvariable. Thesevariablesarelabeledintheliterature astheoutcome, effect,criterion,orconsequencevariables.Researcherstypicallyinvestigatemultiple dependentvariablesinasinglestudy,althoughinmanystudies,oneofthedependent variablesistypicallyofcentralinterest.Dependentvariablescanbemeasuredusing continuousorcategoricalscores.

Forexample,astudyaimstoinvestigatehowstudyhourscorrelateswithtestscores. The independentvariableisthenumber ofstudyhours each studentdevotesanddependent variablereferstothetestscores because thisisdependentonthe numberofstudyhours devoted.

ModeratingVariables

Amoderatingvariableaffectstherelationshipbetweenadependent variableandan independentvariable. Moderatingvariablesareselectedbytheresearcherinastudyto determinethejointimpactof bothindependent and moderatingvariablesondependent variable.Thisimpact iscalled aninteraction effect. A moderatingvariable canbeillustrated inthisquantitative hypothesis:

Forexample,astudyaimstoinvestigate howworkinghoursaffectjobsatisfaction at workplace.Theindependentvariableisthenumberofworkinghoursatworkplaceea ch anddependentvariableisthejobsatisfaction becausethisisdependentonthenumber of workinghoursdevotedat workplace. However,thisrelationship betweenworkinghours andjobsatisfactionatworkplacecouldbeaffectedbyamoderatingvariablesuch as gender.

InterveningVariable

Aninterveningvariableisanattribute orcharacteristicthat"standsbetween"theindependent anddependentvariablesandexercisesaninfluenceonthedependentvariableapartfro m theindependentvariable.Interveningvariablestransmit (ormediate) theeffectsofthe independentvariableonthedependentvariable.

Thus,theyarealsocalledmediatingvariables.Insomequantitativestudies,interveni ng variablesarecontrolled usingstatisticalprocedures.

Confoundingvariables

Confounding variables are extraneous variables whose presence affects both the independentanddependentvariables.Theresearchercannotdirectlymeasuret hese variablesbecausetheireffectscannotbeeasilyseparatedfromthoseofothervariabl es, eventhoughtheymayinfluencetherelationshipbetweentheindependentandthedepend ent variable.

For example,a study aimstodeterminethe effect ofstudy hours on exam scores may not takeintoaccount thepastknowledge oftheparticipantsonthesubject. Inthiscase, previousknowledgeservesasaconfoundingvariable,asitcaninfluencethebothi.e.the amountoftimedevotedstudyingandexamscoresachieved.

8.5 CheckYourProgress-I

Note:(a)Writeyouranswersinthespacegivenbelow.

(b)Compareyouranswerswiththosegivenattheendofthelesson/abovesub-

section.

1. Fillintheblanks

(i) _____oftheproblemisveryessentialafterchoosingthere search topic.

(ii) The problem shouldattempt to fill the ..... in the existing field of knowledge.

(iii) An independentvariable is an attributeor characteristicthat influencesor affects_____

(iv) An_____isanattribute orcharacteristicthat "stands between" theindependent and dependent variables.

(v) Operationalizationofvariablesinresearchisthe proces sof ..... variablesintomeasurablefactors.

_____

_____

2. Mentionthecriteriafortheevaluationofaresearchproblem.

3. Explainthesignificanceofdelineationofvariablesinaresearchstudy.

_____

_____

4. Howoperationalizationofvariablesisimportantinaresearchstudy?

_____

8.6 Operationalizing Variables

Operationalizationofvariablesinresearchistheprocessdefiningvariablesin to measurable factors.Operationalizing avariable means finding a measurable,quantifiable, andvalidindexforvariables(independentanddependentvariables)underinvestigati on.

Suchvariablesascreativity,intelligence,giftedness, motivation,learning, academic achievement,stressandlikeareconceptualizations thataredefinedindictionaryterms. Thesevariablescannotbeobserveddirectly.Vagueandambiguousdefinitionsprovide a poorbasisforidentifyingvariables.Muchmorepreciseand unambiguousdefinitions of variables canbestated inoperationalform,which stipulatestheoperation bywhichthey

canbeobservedandmeasured.Theoperationaldefinitionofthevariableclearlyreflects whattheresearcherintendstomeasureandhowtomeasure.

Instatingaproblem,theresearchershouldmake surethatitisneitherstatedinterms so general astomakeitvague nor specifiedso narrowly astomakeitinsignificantand trivial.

Themostimportantstepinthisdirection istospecifythevariables involvedintheproblem anddefinetheminoperationalterms. Forexample,aresearcherwantstostudythe"Effectof EmotionalIntelligenceon Adjustment ofStudent-teachers".Thisstatementisbroadanditcommunicatesinageneralwaywhat youwanttodo.Butitisnecessarytospecifytheproblemwithmuchgreaterprecision.

For thisthefirststep isto specify thevariables involvedinthe problemand define them in operationalterms.

Thevariablesinvolvedintheproblemare,"EmotionalIntelligence"and"Adjustment".Iti s to be noted thatthese expressions areto beunderstoodbeyond their dictionary meanings.
Forexample,thedictionarymeaningof"EmotionalIntelligence"is"theabilitytounderstan d
youremotionsandthoseofotherpeopleandtobehaveappropriatelyindifferentsituations ".
Thismeaningisquitegeneralnotsufficientforresearchpurposes.Itisimportantfor a researcher tospecify exactlywhat indicator ofemotional intelligence,aresearcher will use orwhathewilldotomeasurethepresenceorabsenceofthefactorsofemotionalintelligence. Researcher isrequired to define theterm operationallyas "emotional intelligenceskills in thepresent studyaremeasured through IOfactors-self-awareness,empathy, self-motivation,emotionalstability,managingrelation,integrity,self-development,value orientation,commitmentandaltruisticbehaviour onEmotional IntelligenceScalebyHyde, PetheandDhar."Similarly, theresearcher hastodefinetheothervariable "Adjustment"in termsoftheoperationsorprocessesthatwill beusedtomeasure itas"adjustmentinthe present investigation isan aggregatescore offive separate measures ofadjustment(home, health,social,emotionalandschool/collegeadjustment)asmeasuredbySaxenaAdjustm ent Inventory by M.S.L.Saxena."

Similarly,thetermstudent-teachercanalsobedefinedoperationallyas,"Student-teacher meansapre-servicecollegestudentwhoisteaching underthesupervisionofateacher-educatorinordertoqualifyforthedegreeofbachelorofeducation.Thus,inthepre sent investigationthetermstudent-teachersmeanstheteacher-traineespursuingB.Ed.course inacollegeofeducationtoacquire

Variables Traits or characteristics that can vary among people or conditions and can be measured (e.g., age, score, attitude).

skillsandcompetenceinteaching."

8.7 CheckYourProgress –II

(i) _____ of the problem is very essential after choosing the research topic.
(ii) The problem should attempt to fill the _____ in the existing field of knowledge.
(iii) An independent variable is an attribute or characteristic that influences or affects _____.
(iv) An_____ is an attribute or characteristic that "stands between" the independent and dependent variables.
(v) Operationalization of variables in research is the process of defining variables into _____ factors.
(vi) A_____ variable affects the relationship between a dependent variable and an independent variable.
(vii) _____ variables are extraneous variables whose presence affects both the independent and dependent variables.

8.8LetUsSumUp

Evaluation oftheproblem isveryessential forsystematic andorganized research. Researchersarerequired toevaluatetheprobleminthelightofresearch ability,originality, significance,budgetaryrequirements,feasibilityoftheproblem,suitabilityofther esearcher, necessary competence to planandcarryout research, abilityto interpret thefindings, knowledgeofstatisticaltechniques, accessibility ofpotentialdata,validlyandreliabilityof datacollectiontoolsetc. Solution oftheproblemcanbeeasily achieved,solved,oranswered bytheresearcherifvalidprocedureiscarried out.A detailed knowledgeoftheresearch studiesconducted inthefield helpstheresearcher togetanideaabout therelevance ofthe problem. Delineating and operationalizingvariables after the adequate selection and evaluation oftheproblemisequallyimportant.

8.9. Keywords

Research Problem A specific, well-defined question or issue that the researcher aims to investigate. It’s the foundation of a research study.

Observation A method of data collection where behaviors or events are watched and recorded.

Data Collection The process of gathering information (data) from various sources to answer research questions.

8.10 LessonEndExercise

1. DiscussthecriteriafortheevaluationofaResearchProblem.
2. Elaboratedelineationofvariablesinaresearchstudy.
3. Describeoperationalizationofvariablesinaresearchstudy.

8.10SuggestedReadings

- Freedman, P.(1960):PrinciplesofScientificResearch. NewYork:PublicAffairs Press.
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LessonNo.9 **Unit-II**

REVIEWOFRELATEDLITERATURE

STRUCTURE

9.1 **Introduction**

9.2 **Learning Objectives**

9.3 **MeaningofReviewofrelatedLiterature**

9.1 Introduction

Humanshavethe advantageto utilizeknowledge whichhasbeenpreserved or accumulated overtheyears. Thisacquired knowledge pertaining to different fieldswhen organized and written down- iscounted asLiterature. Thus, literature inresearch isa collective body ofworks done byearlier researchers and published through online or offline modeintheform of books, articles, research papers, dissertations,doctoral theses, monographetc. Every scientific investigation starts with a Review ofLiterature.The researchermustbethoroughlyfamiliarwithbothprevioustheoryandresearch. Infact, working withthesearching and reviewingliterature constitution essential partofthe research process.

9.2 Learning Objectives

Afterreadingthislesson,youshallbeableto:

- explainthemeaningofReviewofrelatedLiterature.
- describetheImportanceofReviewofrelatedLiterature.

9.3 MeaningofReviewofRelatedLiterature

The phraseReview ofRelatedLiterature isa combinationofthree words-Review,Related andLiterature.Thewordliteratureinresearch methodologymeansjournals,statistical record,encyclopaedias,books,magazines,conferenceproceedings,reviews,abstracts, dissertations,thesesetc.andrelated meanspertainingtoareaof research.Thus,related literature refers tothebodyofknowledgeofa particulararea of investigation inanydiscipline which includes books, journals,periodicals and other forms of research studies.The term review means to examine and organize the existing knowledgeofa particular area ofstudy incontextwiththepresentinvestigationtoensurethattheproposedstudywould bean additiontothefield.Inotherwords,reviewof literatureisawrittensummaryofjournal articles, books, andother documents that

describesthepast and current state of information onthetopicofresearch study.

MangalandMangal(2013)definedreviewof literatureasadeliberateattemptonthe part oftheresearcherto examineand review alltypes ofavailable relevantinformation for findingoutwhathasalreadybeendoneornotdonesofaronthetopicofhisresearch.

Thus,reviewof literatureisapieceofacademicwriting demonstratingknowledgeand understandingoftheacademicliteratureonaspecifictopicplacedincontext.Itisa summaryofthepublishedworkinafieldofstudy.Literature review reflectsthatthe researcherhasexamined thebreadth ofknowledge and canjustifyhis/her research.

Aliteraturereviewhasfourmainobjectives:

- Itsurveystheliterature inyourchosenarea ofstudy
- Itsynthesisestheinformationinthatliteratureintoasummary
- Itcriticallyanalysestheinformation gatheredbyidentifyinggapsincurrent knowledge;by showing limitationsof theories and points of view; and by formulating areasforfurtherresearchandreviewingareasofcontroversy
- ItpresentstheliteratureinanorganisedwayA literature reviewshowsyour readers thatyouhaveanin-depth graspofyoursubject;and thatyou understandwhere yourownresearchfitsintoandaddstoanexistingbodyofagreedknowledg e.

Ithelpstogenerateideas,developing significantquestions andfindingresearchgaps.It helpresearcherinselectionof goodandpinpointedresearchproblems,selectionofvariables, writingobjectivesandhypotheses, delimiting study, selection ofresearchmethod, selection ofsampleandsampling techniques,selectionoftools, collection ofdata, scoring,statistical analysis, presentationsofresults,discussionandprediction. Itupdatesknowledge of researcher,avoidthereplication andsavemoney, timeandenergyofresearcher.

9.4 CheckYourProgress-I

Note:(a)Writeyouranswersinthespacegivenbelow.

(b)Compareyouranswerswiththosegivenattheendofthelesson/abovesub-section.

1. Fillintheblanks

(i) Acquired knowledge pertaining todifferent fields when organizedand written down- is counted as.....

(ii) _____refersto thebody ofknowledge ofa particular

area of investigationinanydiscipline.

(iii) Reviewof literatureishelpfulin ----------differentaspect sofa researchproblem.

(iv) Review of literature is quite helpful in finding out the _____ inearlier researches.

(v) Aproper review oftheliterature helpsin avoiding _____of work.

2. DefinethetermReviewof literature.

_____

_____

3. Enlisttheimportanceof Reviewof literature.

_____

_____

4. Explain thetermplagiarism.

_____

_____

9.5 ImportanceofReviewofRelatedLiterature

Thebasicpurposeofreviewof literature istoexamine,summarizeandsynthesize thefindingsandideasofexistingknowledgeinaparticularfieldwithoutaddinganynew contributions. Thus review of literature includes systematic identification and analysing of relatedinformationtotheresearcharea.Familiaritywithearlierresearchhelpstheresearcher toframe the research questions and research hypotheses that provide future directions for theinvestigator.TheimportanceofthetermreviewofrelatedliteraturecanbejustifieD throughfollowing statementsofeminentauthors:

AccordingtoGood,BarrandScates,"Thecompetentphysicianmustkeepa breast ofthe latestdiscoveries inthefield of medicine.Obviously the careful student ofeducation,the research worker and investigatorshouldbecome familiar with location and useof sources ofeducationalinformation"

Accordingto**W.R.** Borg,"The literature in anyfield formsthefoundationupon which

all future work will bebuilt.Ifwefailto buildthefoundationofknowledge which is provided bythereviewofliteratureourworkislikelytobeshallowand naiveandwilloftenduplicate workthathasalreadybeendonebetterbysomeoneelse."

AccordingtoJohnW.Best,"Practicallyallhuman knowledgecanbefound in booksandlibraries.Unlikeotheranimalsthatmuststartanewwitheachgenerationman buildsupontheaccumulatedandrecorded knowledge ofthepast.Hisconstantaddingto thevaststoreofknowledgemakespossibleprogressinallthe areasofhumanendeavour."

AccordingtoCarterV.Good,"Thekeystovaststorehouseofpublishedliteraturema y opendoorstosourcesofsignificantproblemsand explanatoryhypothesis andprovide helpfulorientation for definitionoftheproblem,backgroundfor selection of procedure andcomparativedatasointerpretationofresults."

Onthebasisofabovediscussion,theimportanceofreviewofrelatedliteratureisa s follows:

1. **Focusingonresearchproblems:** Review of literature ishelpfulinexamining different aspects of a research problem that have been reported by other researchers.Afterthecarefulexaminationofvariousaspectsoftheresea rch problem,theinvestigatorcanidentifythefocusareaofresearchandresear ch gapswhichareessentialtoapresentstudy.Throughthisprocess ofwinnowing, theresearcherwillbeabletoplacetherelevanceofhis/herresearchinthelarge r contextofwhatotherresearchershavealreadydoneontherelatedareainth e past.Thus,reviewof literaturehelpstheresearchertoevaluate, condenseand synthesizegistinhisownwordstosharpentheresearchfocus.

2. **Findingresearchgaps:**Reviewof literatureisquitehelpfulinfindingoutthe researchgapsinearlierresearches.Theresearch gaps scrutinizedinitially arefurther exploredtoestablishthelatestfactsoftheoriestoaddvaluetothefield.Apar t from maintaining continuity ofknowledge,itexposesthe areasthatrequire further investigationandthusaidasastarting point ofanyfuture research.Acareful synthesisof thepastresearcheshelpsaresearchertoidentifythesignificantoverlaps and gaps among the prior works. Moreover,thefinal suggestionsand conclusions oftheprevious research will becometheguiding resourcesforthepresent work.

3. **Adoptingappropriatemethodology:** Reviewof literature providesanopportunity totheresearchertoacquainthimselfwiththevariousmethodologieswhichhave been used byothers intheir field of investigation.The review of existingresearch alsohelpstheinvestigatorto selectabettermethodologyinthelight ofchallenges andproblemsfacedbyotherresearchers afteradoptingtheparticularmethodology. Thus,researchercanadopt amoreappropriatemethodology fortheresearch by examining thestrengthsand weaknesses ofexisting research.Moreover, review increasesthesignificance oftheresultsbycomparing itwiththeexistingliterature.

4. **Avoidingduplicationofwell-establishedfindings:**Aproperreviewofthe literaturehelpsinavoidingduplicationorreplicationofworkwhichhasestablished with relevant data and facts. Acareful review helps the researcher in getting acquaintedwiththenumberandnatureofthestudiesrelatedtothepresent research whosevalidityisbeingassessedatpresent. This,intum,willhelptheresearcherin building abetterperspective forfutureresearch.

5. **Tocontextualize researchfindings:**Reviewof related literatureenablesthe researcherto comparefindingsofthepresent researchwithotherstudiesinthe field. It provides anopportunityto showthe originality anduniqueness ofthe researchinthelightofexisting researchesinthesamefield.Ithelpsinestablishing the consistency in knowledge and ultimately will lead to the increase of its trustworthinesswiththe readers.

6. **Identifyingvariables relevant forresearch:**Acareful reviewoftheliterature makestheresearcher aware about various relevant and irrelevant variablesinthe concernedareaofresearch.Itfurtherhelpstheresearcherinselecting, defining and operationalisingvariables which are conceptually and practically important withinthe scopeofhisstudy. Thus, review of literature,onthewhole,enablesthe researcher to formulate a research problem by selecting conceptually and operationallyimportantvariablesforthestudyunderinvestigation.

7. **Avoiding incidental plagiarism:** Research basically attemptsto answer certain questions whichhave not been answered

sofar. Conducting theresearch without reviewing therelated literature mayhave serious consequences. Forexample, let usimaginethataresearcherconductsastudywithoutreviewingtherelated literature and before publication comes to know that the work has already been done and publishedonthe sametopic byanother researcher.Ofcourse, theresearcher has not plagiarized anything deliberately from that study but people will become suspicious and raise question mark onthe study. At theend ofthe day, thewhole exercisewillbecomeafutileactivityasthereisnosignificanceofrepeati ngsimilar
research.Itwillleadtothesheerwastageoftime,energy,money,andothe r
resourcesonthepartoftheresearcher.Thus,reviewofrelatedliteratureca nhelp the researcher to avoid such mishaps.

Thus,itcanbeconcludedthatreviewofrelatedliteratureisoneof theimportant aspectsofresearch processwhich providesbasisforresearchworkandguidestowards the solution ofthe problem.

9.6 CheckYourProgress -II

Q1. Explain these terms with suitable example

(i) literature

(ii) relatedliterature

(iii) examining

(iv) researchgaps

(v) duplicationorreplication

9.7 LetUsSumUp

Reviewingtheliteratureincludesidentificationofallrelevantpublished materialin theproblemareaandreadingthatpartof itwithwhichthe researcher isnotfamiliar. It helpstheresearchertoevaluatetheresearchproblemtogetanideathathowthe present
researchisdifferentororiginalfromwhatothershavedone.Ithelpsinrational izing the needforconductingtheparticular researchinaspecifiedfield. Theimportance of literature review inresearch canbecondensed into ananalytical feature to enablethe multifold reachof itssignificance.Itaddsvaluetothelegitimacyoftheresearchinmanyways.It

helpsinjustifyingtheresearch. Itisimportant toknowwhat hasbeen already established, discreditedand acceptedin the particular field ofresearch.It establishes the background inthe field for the researcher and provides the reader a summary ofthe thinking and research necessary forthemto understand study. A profound literature review with many relevant sourcesofreference enhancesthecredibilityoftheresearch.

9.8 Keywords

- **Literature Review**
  A summary and evaluation of existing research on a topic to understand current knowledge and identify gaps.

- **Synthesis**
  Combining ideas from multiple sources to create a new understanding or perspective.

- **Critical Analysis**
  Evaluating the strengths, weaknesses, and logic of existing research or arguments.

- **Academic Context**
  The scholarly environment and standards within which research is conducted and communicated.

9.9 LESSONENDEXERCISE

1. Discuss theconceptReviewof literature.
2. Describetheimportance of Reviewof literature.
3. What is a literature review, and why is it important in research?
4. Explain the meaning of synthesis in the context of academic writing.

9.10 SUGGESTEDREADINGS

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LessonNo.10 **Unit-II**

HYPOTHESIS

STRUCTURE

10.1 Introduction

The process of research begins with the selection of a suitable problem from a particularfield ofstudy. Thesearchforfinding thesolution ofthe problem startswitha set ofspeculations,suppositions,andguessestoarriveatsomevalidconclusions.Th istentative solutionofferedtotheproblemintheformofatestableprepositioniscalled ashypothesis. It isusually consideredasthe practicalprincipal instrumentin research.In fact, many researches areconductedwiththedeliberateobjectiveoftestinghypothesis.Thesolepurposeof a hypothesisistomake prediction about thefindings,and conclusionsofthestudy. It comes fromaplaceofcuriosityandintuition.

10.2 Learning Objectives

Afterreadingthislesson,youshallbeableto:

- explainthemeaningof Hypothesis.
- identifythemajorsourcesofHypothesis.
- describethetypesofHypothesis.
- elaboratethecharacteristicsofagoodHypothesis.
- enumeratetheimportanceof Hypothesis
- differentiatebetweenAssumptionandHypothesis

10.3 MeaningofHypothesis

Etymologicallythe word 'hypothesis'is derived from two Greek words- hypoand thesis.'Hypo'meanstentativeorsubjecttotheverificationand'thesis'meansstatement aboutsolutionofaproblem.Thus,thetermhypothesis meansisatentativestatement about thesolution ofthe problem'.Hypothesisoffers asolution ofthe problem that isto be verified empiricallyandbasedonsomerationale.

Anothermeaning ofthewordhypothesis which iscomposedoftwo words:'Hypo' meanscompositionof two ormorevariables which istobeverified.'Thesis'means position ofthesevariablesinthespecificframeofreference.

Oxford dictionary:"Hypothesisisanideaorexplanation ofsomething

thatisbasedona fewknownfacts,butthathasnotyetbeenprovedtobetrueorcorrect".

Goodeand Hatt:"Hypothesisisaproposition whichcanbeputtotesttodetermine its validity."

Lundberg:"A hypothesis is atentative generalisation,the validity ofwhich remains to be tested.Initsmostelementarystage,thehypothesismaybeanyhunch,guesstheimaginative idea, which becomes thebasisforactionorinvestigation."

CarterV.Good:"A Hypothesis isashrewdguessorinferencethatisformulatedand provisionallyadoptedtoexplainobservedfactsorconditionsandtoguideinfurther investigation"

P.V.Young:"Hypothesisisprovisionalcentralideawhichbecomesthebasisforfruitful investigation,knownasworkingtheory."

Coffey: "Hypothesisisan attempt at explanation:a provisionalsuppositionmadeinorder toexplainscientificallysomefactsorphenomena."

Thus, when aresearcher formulatesa hypothesis,heisactually making an educatedguess basedonscientificfactsandevidences,whichisfurtherprovenordisproventhroughthe scientificmethod.

10.4 SourcesofHypothesis

A hypothesis maybeformulated through anumber ofsources. However, following arethemainsourcesof hypothesis:

1. PersonalExperienceandCreativityoftheResearcher

Bothcreativity andexperiencearecapable ofderiving adequatehypothesis.While workinginanenvironment,aresearchercomesacrossmanyproblems,some of whichareseriousenoughandrequireshardworktosolvethem.Forexample, a researcherwhoisworkingonthe'ClassroomCorrelatesofEffectiveTeaching' canthinkof ahostof factors such asteacher'smasteryoverthesubject,effective use ofteaching skills,decision-making, capability,perception of his competence, perception ofstudent's capacityfor better interaction,useofcommunicationskills etc.

Acriticalanalysisofthesefactorsmayfacilitatethetaskofstudyingtherelationship

amongthevariables.Personalexperiencesoftheresearcherasaresultof his personal readings of biographies,autobiographies, newspapers,research activities, relevantliterature, informal talkswithfriends,socio-politicalspeeches,etc. can bethepotentialsourcesinthegenerationofahypothesis.

2. RelatedLiterature

Related literature isconsideredasthe essentialsource of hypotheses formulation. It isnecessaryfor aresearcher tobethoroughly familiar withestablishedfacts and existingstudies relating tothe problem. It sharpens theperspectiveofaresearcher andservesasaguideastohowtohypothesizetherelationshipamongthevariables , which aspects of relationshiphave been already studied and which still remain to betested.Arichbackgroundofrelatedknowledgeenablestheresearcher to locatethekeyassociationamongthevariablesandtofindoutthegapsinth e existingresearch.Sansanwal(2020)inhisbookonResearch Methodologyand AppliedStatistics explains that ifaresearcher wants to undertakeresearch related toe-Marketing, thentheresearches conductedrelated tomarketing shallbe reviewed.Heremarksthatwhilereviewingresearchesonemayfindthat no researchhasbeenconductedrelated toe-Marketing.Under suchcircumstances theresearcherhastoformulatehypothesisinNullForm(Ho).Hefurther elaborates anothercaseas,ifafew researcheshave beenconducted,itisdifficult togive any directionasthebaseisnotsostrong.Thus,hypothesisshouldbeformulatedina NullForminthiscaseaswell.

3. RelatedTheory

ATheoryissuppositionorasystemofanideaintendedtoexplainsomethin g, especiallyonebased ongeneralprinciplesindependentofthething tobeexplained. A researcher mayundertake aresearch which isbased on some theory.Sansanwal(2020)presentedanexampleofformulatinghypothesison thebasisoftheoryas ifaresearcherwantstostudytheeffectofRewardonmemorisationofspelling s byGrade2students,inthisregardSkinner'sOperantConditioningTheory will serve asabasisfortheformulation of hypothesis.Inthis case, the researchershould formulatehypothesisinDirectionalformonlyasrelatedTheoryisthebase.T he hypothesisinNullformcannot bejustifiedinsuchcases.

10.5 Check Your Progress I

1. Define hypothesis in the context of research.

2. How does a hypothesis guide the research process?

3. Name two common sources of hypotheses in research.

4. How is a hypothesis different from a theory?

10.6 TypesofHypothesis

Hypothesesingeneral,canbedividedintotwobroadcategoriesi.e.Research HypothesesandStatisticalHypothesesinbehavioural sciences. Theresearcher can formulateanyoneoftheseintohis/herstudybut StatisticalHypothesescanbetested directlybymakinguseofstatisticaltechniques.Theresearchhypothesescanb etested onlythroughtheStatisticalHypotheses.

1. ResearchHypothesis

Aresearch study proceedingonscientific lines startswith theresearch hypothesis.
Aresearchhypothesisisalsoregardedasscientifichypothesis.BestandKa hn(2006) defineresearch hypothesis asaformal affirmativestatementthat predictsthetentative explanationof the relationship between two or more variables.Thishypothesis focusesthe investigationonadefinitetarget anddetermineswhatobservationsormeasurestobe used.

A researchhypothesisisclassifiedasDirectionalHypothesisandNon-directional Hypothesis

a) DirectionalHypothesis: Inadirectionalhypothesis, theresearcherpredictsthe directionofachange, adifference, orarelationshipforvariablesinthetotal populationofpeople. A researcherselectsasampleofpeoplefrom apopulation andpredictsthatthescoreswillbehigher,better,orchangedinsomeway. This typeofhypothesisisformulatedtopredict therelationshipbetweenthetwoor moredependentandindependentvariablesandthenatureanddirectioninwhic h thechangemightoccur,i.e.,less,more,greater,smalleretc.Thedirection al hypothesisisformulatedintheresearchwhentheresearcherislookingforaspecif ic outcomefromthestudy.Forexample, adirectionalhypothesisisformulatedas under:

- Increaseinthenumberofstudyhoursresultsinhigheracademicachievement.

- Peoplewithhighemotionalintelligencearebetteradjustedatworkplace.

b) Non-directionalhypothesis: A variationonthedirectional hypothesisisthe non-directionalhypothesis.Inanon-directionalehypothesistheresearcherpredicts achange,adifference,orarelationshipforvariablesinapopulationbutdoesnot indicatewhetherthedirectionofthisprediction willbepositiveornegative,or greaterorless.Thistypeofhypothesisisformulatedtopredictthatthereexistsa relationshipbetweenthetwovariablesbutdoesnotanticipatetheexactdirection oftherelationshipbetweenthetwovariables.Itisusedwhenthereisnotheory involved.Itisastatementthat arelationshipexistsbetweentwovariables, without predicting theexact nature(direction) oftherelationship.

Forexample,adirectionalhypothesisisformulatedasunder:

- Numberofstudyhoursaffectsacademicachievement.
- Emotionalintelligenceaffectsadjustmentatworkplace.

2. NullHypothesis

Nullhypothesis isthemost traditional formofwriting ahypothesis. Itisdenoted by "HO".Anullhypothesisproposesnorelationship betweentwovariables.Tostudythis hypothesis,researcherselectsasampleof allpossiblepeopleanddrawconclusionsfrom thestatistical analysis ofthissample forthepopulation.A null hypothesis might begin with thephrase"Thereisnosignificantdifferencebetween"groupsor"Thereisnosignificant relationshipbetween(oramong)"variables.Thenullhypothesispredictsthattheresults willshownoorlittleeffect. Itisapredictive statementthatresearchersusewhenitis thoughtthattheindependentvariable willnotinfluencethedependentvariable. Ifthesample results donot support the null hypothesis,researcher should conclude that somethingelseistrue.Whatresearcherconcludesrejectingthenullhypothesisisknown asalternative hypothesis. ItisdenotedbyHI. Inother words,theset ofalternativestothenull hypothesis isreferredtoasalternative hypothesis.

Null hypothesisisformulatedasunder:

- There isno significantrelationshipbetween number ofstudy hours and academic achievement.
- Thereisnosignificantrelationship between emotional intelligence and adjustment atworkplace.

The null hypothesis and alternativehypothesis areformulated before thesample is drawn.Alternativehypothesisisusuallytheone whichonewishestoproveandnullhypothesis istheonewhichonewishesto disprove. Thus, a nullhypothesis representsthehypothesis, aresearcheristryingtoreject,andalternativehypothesisrepresentallotherpossibilit

ies.

10.7CharacteristicsofaGoodHypothesis

Hypothesisisnot just a simpleguess. Hypotheses aregenerallyformulatedonthe basisoftheresultsoftheprevious studies. In fact, manyresearches arecarried outwiththe objective oftesting hypotheses.Following are some ofthe characteristics of a good hypothesis.

1. **Hypothesis should beclearand precise.** Hypothesis should be formulated in clear and preciseterms.A clear statementof hypothesis generallyinvolves concise technical language and definitionoftermsthatarebetter defined thanthosein commonlanguage.Vaguetermsorconstructs aredifficulttodefineoperationally. Ifthehypothesis isnotformulated inclear and precise manner, the inferences drawnonitsbasiscannotbetakenasreliable.So,thetermsusedinformulating hypothesisshould becrystalclearandunambiguous.

2. **Hypothesis must be testable:** Hypothesis should be testable. It means a hypothesis should be capable of being accepted or rejected on the basis of observation and experimentation. Ifa hypothesis cannot betested by making observations orexperimentation,itcannot beregarded asscientific.

3. **Hypothesisshouldstatetherelationshipbetweenvariables:** Variablesare measurablecharacteristicsorpropertiesofpeopleorthingsthatcantakeondifferent values.A hypothesisisatentativestatementabouttherelationshipbetweentwo ormorevariables.Itisaspecific,testable predictionaboutwhattheresearcher expectsto happeninastudy. It should presume arelationship betweentwo or morevariablesinawaythatcanbetested withempirical data.

4. **Hypothesisshouldbelimitedinscope:** Ahypothesisshouldbelimitedinscope. Sometimes anover-ambitiousresearcher formulates anambiguous hypothesis of globalsignificance.Aresearchermustrememberthatnarrower hypothesesare generally moretestableand heshould develop suchhypotheses.

5. **Hypothesis should bestated insimple terms:** Hypothesis should bestated as faraspossibleinmost simpleterms.Researcher should

notmakeuseofvague terms or constructs while formulating hypotheses. It is useless to formulate hypothesisthatmakesuseoftermsorconstructswhichdonotconveythei ntended meaningto thereaders. Theresearchershould makeuseofgenerallyaccepted termsfornaming a phenomenon.

6. **Hypothesisshouldbewithintheambitoftheavailable research techniques:** Hypothesis should be formulated within the ambit of the available research techniques.The researcher should be aware oftheavailable research techniques which can be used to measure the concepts and variables embodied in the hypothesis. Itdoesnot however meanthat hypotheses which arenot testable with the available techniques of research are not to be made. Ifthe problem istoo significant and therefore the hypothesis framed becomes too ambitious and complex, it'stesting becomes possible withthe development ofnew research techniques or the hypothesis itselfleadsto the developmentofnew research techniques.

7. **Hypothesis should beconsistentwiththeexistingtheory: A**hypothesis must be related to the existing theory or should have atheoretical orientation. The growthofknowledgetakesplaceinthesequenceoffacts,theory,laworpr inciples. It meansthehypothesis shouldhavea correspondencewith theexisting factsand theory.Ifhypothesisisrelatedtoexistingtheory,theresearchworkwille nablethe researcherto support, modifyorrefutetheexistingtheory.Theoretical orientation ofthehypothesisensuresthatitbecomesscientificallyuseful.

10.8 CheckYourProgress Ii

Note:(a)Writeyouranswersinthespacegivenbelow.

(b)Compareyouranswerswiththosegivenattheendofthelesson/abovesub-section.

1. Fillintheblanks

(i) Hypothesisisa _____whichcanbeputtotesttodetermineitsvalid ity.

(ii) Ahypothesisis atentativegeneralisation,the validityofwhichremainstobe

_____

(iii) Researchhypothesisasaformal----------that predictsthetentative explanationoftherelationshipbetweentwoormorevariables.

(iv) It is the investigator's eye - a sort of _____inthe work of darkness.

(v) Hypothesis provides _____and _____toaresearch activity.

2. Explainthemeaningof hypothesis.

_____

_____

3. Illustratethemajorsourcesofhypothesis.

_____

_____

4. Mentionthemaincharacteristicsofhypothesis.

10.9ImportanceofHypothesis

Theimportanceofhypothesis isgenerallyrecognizedmoreinthestudieswhich aimtomakepredictionsaboutsomeoutcome.Inexperimentalresearch,there searchers isinterestedinmakingpredictions abouttheoutcome oftheexperimentorwhattheresults areexpectedtoshowandthereforetheroleofhypothesesisconsidered tobeofutmost importance.Inthehistoricalordescriptiveresearch,ontheotherhand,theres earcheris investigatingthehistoryofacityoranation,thelifeofaman,thehappeningofanev ent, or isseekingfactsto determinethestatusquoofsomesituation andthusmaynothaveabasis for making a prediction ofresults. Differentauthorshaveexpressedtheirview-pointsregardingtheimportanceofformulating hypotheses summarized asunder:

Theimportanceofhypothesesmay besummarizedasunder.

1. **Facilitate the extension of knowledge: Hypotheses** provide tentative explanationsoff actsand phenomena,andcanbetested

andvalidated. Itsensitizes theinvestigatortocertainaspectsofsituations whicharerelevantfromthestandpoint of the problem in hand.

2. **Logicalorderofrelationships: Hypotheses**helpindevelopingalogical orderof relationships whichseekto describe orto explain conditions orevents, that have notyetbeenconfirmedbyfacts.Itenablestheresearchertorelatelogicall yknown facts to intelligent guesses about unknown conditions.

3. **Guidetothethinkingprocess:**It isaguideto thethinking processandthe processofdiscovery.Itistheinvestigator'seye- asort ofguiding lightinthework ofdarkness.Itprovidesthemapthatguides and expeditestheexploration ofthe phenomena under consideration.

4. **Providedirectiontotheresearch:**
Hypothesisprovidesdirectiontotheresearch andhelpsinpreventingthecollectionofuselessorirrelevantdata.Itpr ovidesa basisforselectingthesample andtheresearch procedures to beusedinthe study. Thestatistical techniques needed inthe analysisofdata, andthe relationships between the variables to be tested, are also implied by the hypotheses. Furthermore,thehypotheseshelptheresearchertodelimithisstudyi nscopeso that itdoes not become broad or unwieldy.

5. **Provide thebasisforreporting** conclusions: Hypotheses providethebasisfor reporting the conclusions ofthe study. It serves as aframework for drawing conclusions. The researcher tests each hypothesis separately and states the conclusionsthatarerelevanttoeach.Onthebasisoftheseconclusions,re searcher canmaketheresearch report interesting and meaningful tothereader. It provides theoutlineforsettingconclusions inameaningful way.

6. **Selectionofresearchdesign:**It helpsindecidingandselectingappropriate research design to pursue a study.

7. **Stimulatefurtherresearch:**A hypothesiscanalsostimulate furtherresearchby generatingnewquestions,insights,orhypothesesbasedontheresultsofy our test.

8. **Accuracy and precision:** Hypothesis provides accuracy and precisiontoaresearch activity. Accuracy andprecision isthefeature of scientific investigation which is possibleduetohypothesis.

9. **Linkbetweentheoryand investigation:** **Hypothesis**establishesalinkbetween theoryandinvestigation.Inotherwords,hypothesis actsasabridgebetween theoryandinvestigation.

10. **Linkbetweenassumptionandobservation:**Hypothesisalsoservesas alink betweenassumptionandobservation.Hypothesisactsasanassumptionatt he initialstageandistransformedintoa workingforminthefield.Thistransformation takes place duetoobservationinthefield.So, it creates a link between assumption and observation.

10.10 DifferenceBetweenAssumptionandHypothesis

Assumption	**Hypothesis**
Itisakindofbelieforideawhichis consideredtobetruewithoutsufficient evidenceorproof.	Itisa proposedexplanationor prediction for aphenomenonthatcanbetestedthrough experimentationorobservation.
General assumptions mayormay notrequire any methodsforverificationoracceptance. Researchassumptionsaregenerallyproved byforminghypothesisbasedonthem.	Various experiments can lead to various results.Thus,ahypothesiscanbeprovedor rejecteddependinguponthemethodusedby scientists.
Itisprovedthrougharguments.	Itisprovedthroughexperiments.
Itisoftenbasedonpersonalexperienceor intuition,andcanleadtobiasedorflawed conclusions.	Itistypicallybasedonpriorknowledgeron some earlier theory, and is used to guide furtherinvestigation.
Assumptionsarenotstatisticallytestedin research.	Hypotheses are statisticaly tested my research.
Usedineverydaylifetomakedecisions quicklyortosimplifycomplexsituations	Used in scientific research to guide the designofexperimentsandtoevaluatethe resultsofthoseexperiments.
Inresearch,itdenotestheexistenceofthe relationshipbetween thevariables.	Inresearch,this is theexpected relationship betweenvariables.

10.11 CheckYourProgress-II

(i) proposition

(ii) tested

(iii) affirmativestatement

(iv) guidinglight

(v) accuracyandprecision

10.12 LetUsSumUp

Inshort,itcanbeunderstoodthatahypothesisisanassumption that

researchers makeonthebasisofthelimited evidence collected. Itisthestarting pointofstudythat translatesresearchquestionsintopredictions.Thevarioustypesofhypothesesinclude Null Hypothesis, Simple hypothesis, Directional hypothesis, Complex hypothesis, Non-directionalhypothesis,andCausalandassociativehypothesis.Thus,ahypothesisistentative assumptiondrawnfromknowledgeandtheorywhichisusedasaguideintheinvestigation ofotherfactsand theorythat areyet unknown. It isacentral core ofstudy that directs the selectionofthedatatobegathered,theexperimentaldesign,thestatisticalanalysisand conclusionsdrawnfromthestudy.Since,hypothesisisaformulation ofanticipatedfindings, studentsareadvisedtodevelopahypothesis asameansofdemonstrating the basisfor their studyto themselves andtheirreader.

10.13. Keywords

Assumption: Something accepted as true without proof to support research.
Tentative Explanation: A preliminary idea or guess about why something happens, not yet proven.
Research Question: The main question a study aims to answer.
Predictive Statement: A statement predicting how one factor affects another in research

10.14 LESSONENDEXERCISE

1. Explainthemeaningandsourcesof Hypothesis
2. Describe themajortypesof Hypothesis.
3. ElaboratemaincharacteristicsofagoodHypothesis.
4. DifferentiatebetweenAssumptionandHypothesis.

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LessonNo.11 **Unit-III**

INTRODUCTIONTOSAMPLINGTECHNIQUE

Structure

11.1 Introduction

Statisticswhicharecollectedand analyzedareeither descriptiveorinductive in character.Descriptivestatistics arethose which describesome

characteristicsofasetof figures. Asagainstthis, inductive statistics refer to drawing inferences about aPopulation onthebasisoftheexaminationofapartofthepopulationonly.Inotherwords,inductive statisticsrefertoestimating valuesof thepopulationonthebasisofsample study. Inmodem decision-makingprocessinvariousfieldsofhumanactivities,mostofour decisionsare basedontheexaminationofafewobjectsonlyor,inotherwords,theyarebasedon samplestudies.Thisprocessofdrawinginferencesaboutapopulationonthebasiso f samplestudiesnaturallyinvolvesanelementofrisk,becauseonemaydrawwrong inferences aboutapopulationbystudyingasample.Modemstatisticaltheorymakesanattemptt o evaluate thisrisk intermsofprobability.Thus,onecan find out theprobability ofhisgoing wrongindrawinginferencesaboutthepopulationbystudyingasample.

Eventhoughthetheoryofsamplinghasbeendevelopedonlyduringthelastfe w decades,theideaofsampling isnot new. People have beenusing samplingtheory without knowing about it.Normally,people examine andinspectasmall samplefromapopulation and takea decision about acceptingor rejectingtheitems ofthewhole lot from which the samplehasbeentaken.Forexample,agrainmerchantdoesnot examineeachgrainof wheatthathepurchases.Hesimplytakesoutahandfulandfromitgetsanideaaboutthe qualityofthewholeconsignment.Similarly,afruitmerchantdoesnotexamineeachand everyapple,mangoorguavahepurchases.Heinspectsonlyafewofthem.Theco m merchantandthefruitdealerarenotconversantwiththetheoryofsampling;theysimply believethatthesamplegivesthemacorrectideaaboutthepopulation.Thisbelief isbuilt afteryearsandyearsofexperience.Thereisfurther,abeliefthatthelargerthesizeofthe sampleselected.Thebetteristheideaobtainedaboutthepopulation.Ifafruitdeal er inspectsonlyfiveapplesoutof500,whichheispurchasing,hemay notget anaccurate ideaabouttheconditionofthewholelot. Insuchcases,hewillinspect somemoreand satisfyhimself

However,makinginferencesaboutthepopulationonthebasisofsamplestudi es involves ariskinasmuch asthere may beadifference inthevalue obtained from a sample andtheactualvalueinthepopulation.Forexample,ifwetryto haveanidea aboutthe averagemarksobtainedby500studentsbystudyingasampleofI00,themeanthatwe getbythesamplestudymaybedifferentfromtheactualmeanmarksofthe500students fromwhichthesamplehasbeentaken.Thisdifferencebetweenthesamplevalueandthe populationvalueisknownassamplingerror.

11.2Objectives: After studying this lesson, learners will be able to

- Define descriptive and inductive statistics with examples.

- Explain the concept of sampling and its importance in statistical research.
- Differentiate between finite and infinite, and hypothetical and existent populations.
- Describe the characteristics of a good sample.
- Understand and apply basic principles of sampling theory (e.g., statistical regularity, inertia of large numbers, persistence, optimization, validity).

11.3 Types of Population

Finite and Infinite Populations: Before discussing the methods by which samples can be selected and the results analyzed, it will be better to give an idea about the various types of populations from which samples can come. Broadly speaking, the populations can be of two types Finite and Infinite. By finite population we mean such populations which contain a definite number of units. Thus, the number of students in the Indian universities is a finite population. Similarly, the population of the Indian Union is a finite population. As against this, an infinite population is one, in which the number of units is infinite. Thus, the length of leaves of a tree or the height distribution of the Indian population or the production of wheat in India would give infinite populations. Even though it may be possible to measure the leaves of a tree or the heights of all the persons of India or the production of wheat in this country, the actual values would always vary within certain limits. The series that we shall get in such cases would be continuous, as exact measurements are not possible. As we shall see later on, infinite populations are better for sampling studies. We have already noted that the probabilities of various events can be better estimated if the population is infinite.

Hypothetical and Existent Populations: Populations can be classified as hypothetical and existent. Hypothetical population is one which does not consist of concrete objects. For example, if a dice is tossed, each throw is an individual unit and we can construct a population by throwing the dice a large number of times and recording its results. Such populations consist of an infinite number of items, because we can go on throwing the dice any number of items we like, unless of course, it wears out. Existent population as the name suggests, refers to a population of concrete objects, like the number of persons having a certain income or the number of books with a certain number of pages, etc. We have noted that in the hypothetical population, the values of p and q remain constant in various trials, and this is a very important property of such populations. The probability of a dice falling with number 6 upwards will always

remain 1/6inall possible throws, and this property enables us to fit a particular curve to such data with a high degree ofaccuracy.

11.4 Sample

Asample is afinite part ofa population whose properties are studied to gain informationaboutthewholepopulation.Nowthatwehavesomeideaaboutth etypeof populations fromwhich sample canbechosen we would discuss in briefthemain objects ofsampling studies. Itisobviousthatthe most important aimofsampling studiesisto obtainmaximum information about thephenomena under studywiththeleast sacrifice of money, time and energy. Ifthe samplestudy hasbeen madeinsuch a mannerthat wecan obtainalargevarietyofinformationaboutthephenomena towhichthesamplerelates, it wouldbeeasyforustohaveanideaaboutsimilarinformationrelatingtothepopul ation.If, forexample, the sample studiesreacting to expenditure ofselected students inIndian universities have beendone properly, theywouldgive usanidea aboutthedistribution of expenditureofallthestudentsinIndianuniversities.Thus,theaimofsamplingstu diesisto obtain thebest possible values ofthe parameters.(Theword parameter isused to indicate variousstatisticalmeasures,likemean,standard deviation,correlation,etc., inthepopulation. As against this, theterm statistic refersto the statistical measures relating to the sample.) Thisaimisbest achievedifthesample studies are madeinsuch awaythat theydisclose a mathematicalrelationshipbetweenthevaluesofthedistribution. Forexample, ifitisfound outthataparticularfrequencydistributionobtainedbyasamplestudyconformsto Binomial, NormalorPoissondistribution,theparametervaluescanbeveryeasilyestim atedanda highdegreeofreliance canbeplaced onthem. Thus,alarge part ofsampling theoryis devoted to finding out some constant ofthe population. Ifthey arefound out, avery accurate idea about the parent distribution isobtained from thesampling studies. Even if onlythemeanandstandarddeviationofthepopulationcanbeestimatedbyso me mathematicalrelationship observed inthesample, itisenough to have anidea about many other parameter values.

11.5 CharacteristicsofaGoodSample:

Thefactthat samplingstudies,ifproperly conducted,give afairlygood idea about values in the population isbasedonthetheory of probability.There are certain important

lawsonwhichsamplingtheoryisbased.Someofthemarediscussedbelow:

1. LawofStatisticalRegularityofprobability

Thelawofstatisticalregularity lays downthat a group ofobjects chosenat random fromaparticulargrouptendstopossesscharacteristicsofthatgroup(population)and a largenumberof itemstakenatrandomfromeachgrouparealmostsureonanaverageto possesscharacteristicsofeachgroup.Ifasamplehasbeenselectedtakingintoaccou nt theaboveconditions,it canbeexpectedthat theinferencedrawn fromthesamplestudy wouldbebyandlargeapplicabletothepopulationasawhole.

2. Principleof InertiaofLargeNumbers

It isactually derived from the principle of statisticalregularity. According toit, as samplesizeincreases,resultswouldbemorereliable.Largenumbersarerelativelymore stableintheircharacteristicsthansmallnumbers.Itdoesnotmeanthevariation inlarge numbersisnotmuch.Itisthere;but it ismuchlessthanwhatit isinsmallnumbers.For example,ifwetossacointentimes,itisquitelikelythatwemayget7headsand3tails; butifwetossitI00times,resultswould bemoredependableandwemayget,say,60 headsand40tails.IfthecoinistossedI000times,thelikelihoodisthatthenumberof headsandtailswouldbeveryclosetoeachother.Thus,largerthesample size,themore dependable aretheresults.

3. PrincipleofPersistence

Ifsomeitemsofthepopulation possesssome specificcharacteristics,these characteristicswouldbefoundinthesamplealsoandevenifthesamplesizeisincreased orthe population isincreased,these characteristicswouldbe reflectedinthe same manner asinthepreviouscase.Forexample,ifonanaverage,5% studentspasstheChartered Accountants Examination inthefirst attempt, thenthispercentage would bereflectedeven ifthesizeofthesampleisincreasedorthesizeofthepopulationisalsomultiplied.This percentagewould remainmoreorlessconstant.

4. PrincipleofOptimization

According tothisprinciple,effortshould bemadetoget best possible or optimum resultsbothintermsofcost aswellasefficiency.Largerthesizeofthesample,more wouldbethecostofconductingthesurvey,butbetter wouldbetheefficiency also.The sizeismaintainedinsucha waythattheresultsareoptimizedintermsofcostandefficiency. Thisprincipleaimsatobtaining adesiredlevelofefficiencyattheminimumcostand, atthe sametime,ofobtainingmaximum possibleefficiency

withagivenlevelofcosts.

5. PrincipleofValidity

Asampledesigniscalledvalidonlywhentheinferences drawnfromit arevalidfor thepopulationfromwhichthesamplehasbeentaken.Atalaterstage,wewillarriveata conclusionthat,ingeneral,sampleswhicharedrawnatrandomwouldbefoundtob e morevalid thanthosedrawn otherwise.Even here,many considerationshavetobe kept in mind. Notonlythesample hastoberandom, butitssizehastobeadequateandthe collectionofdataanditsanalysishavetobescientificallydone.

11.6 Check Your Progress-I

Write T for True and F for False.

1. Descriptive statistics involve drawing conclusions about a population based on a sample.
2. A sample is a part of a population selected for analysis.
3. Finite populations have a limited number of units.
4. Hypothetical populations consist of real, concrete objects.
5. Sampling error refers to the difference between a sample statistic and the population parameter.
6. Larger sample sizes always guarantee accurate results.

11.7 ErrorsinSampling

Theword'error'isusedinaspecialisedsenseinstatistics.It doesnotmeanthe same thingas a'mistake'Mistake in statisticsmeans wrongcalculationor use ofinappropriate methodinthecollectionoranalysisofdata. Error,ontheother hand,means "the difference betweenthetruevalueandtheestimatedvalue."Errorsinstatisticsmayariseduet o variousreasons.Statisticalerrorsariseduetoalargenumberoffactors.Theymaybedue toinappropriatedefinitionsofstatistical units,bias of theinvestigatoror theinherentinstability ofthecollecteddata.SucherrorsarecalledErrorsofOrigin.Errorsmayalsoariseon accountofmanipulation incounting,measurement,descriptionorapproximation.Such errorsareknownasErrorsof Manipulation.Yetanothercauseofstatisticalerrorsmaybe theuseof incompletedata,errorsmayalsoariseonaccountof inadequacyofthesizeof thesample andallsucherrorsarecalled Errorsof inadequacy.SamplingandNon-Sampling Errorsinstatisticsareclassedintwocategories,namely, (1)Samplingerrors,and(2) Non-sampling errors.

Sampling Errors: Sampling errors have their origin in samplingand they

arise on accountofthefact that sample hasbeen used to estimateparameters or population values. Sucherrors arenot foundincensus enquiry where thewholepopulationisinvestigated.

Samplingerrorsareattributedtofluctuationofsamplingand that iswhytheyarecalled sampling errors.Such errors would always bethere insample studies,notwithstandingthe factthatthesamplehasbeenproperlychosenanditisofadequatesize.Samplesalways-giveestimatedfiguresaboutthepopulationandthedifferencebetweentheactualand estimatedfigureswould always remain andthedifferences arecalledsampling errors.

11.8 Non-SamplingErrors

Asdistinctfromsamplingerrors(whichareduetodrawinginferencesaboutthe populationonthebasisofthesamplestudies)non-samplingerrorsgenerallyarisewhen dataarenotproperlyobserved, approximated andprocessed. Thesearenotchance errors.Such errors are present inboth Census aswell asSamplemethods ofsurvey.Inthe Censusmethod,althoughthedataarefreefromsamplingerrors,yettherecouldbenon-samplingerrorsinthem.Thedataobtainedfromsamplesurveysaresubjectbothtosampling andnon-samplingerrors.

11.9Check Your Progress

1. Differentiate between sampling and non-sampling errors with examples.
2. Discuss the impact of sampling error on research findings and how it can be minimized.
3. Explain the role of probability theory in managing sampling errors.
4. Why can non-sampling errors be more dangerous than sampling errors in research?

11.10 Let us Sum Up

Sampling helps study a part of the population to understand the whole, saving time and cost. Good sampling follows key principles to ensure results are reliable and valid. Sampling errors happen due to differences between sample and population, while non-sampling errors come from data collection issues. Probability theory helps measure the risk of errors in sampling.

11.11 Lesson End Question:

1. What is a finite population? Give an example.
2. What is an infinite population? Give an example.
3. Name any three good qualities of a sample.
4. Why is sampling sometimes risky?
5. What is a sampling error?
6. How does probability help in sampling?
7. What is the principle of optimization in sampling?

11.12 Suggested Readings

- **Gupta, S.C., & Kapoor, V.K. (2020).** *Fundamentals of Mathematical Statistics.*

Cochran, W.G. (1977).*Sampling Techniques* (3rd ed.)

- **Yamane, Taro (1967).***Statistics: An Introductory Analysis*
- **Kothari, C.R. (2004).***Research Methodology: Methods and Techniques* (2^{nd}ed).
- **Levin, R.I., & Rubin, D.S. (2012).***Statistics for Management*

LessonNo.13 **Unit-III**

NON-PROBABILITYSAMPLING

Structure:

13.1 Introduction

Inmanyresearchsituations,particularlythosewherethereisnolistofpersonsto bestudied(e.g.,wifebattering,widows,Maruticarowners,consumersofaparti cular typeofdetergentpowder,alcoholics,studentsandteacherswhocutclassesfreque ntly, migrantworkers,andsoon,probabilitysamplingisdifficultandinappropriatetous e.In suchresearches,non-probabilitysampling isthemost appropriateone.Non-probability sampling procedures do not employ the rules of probability theory, do not claim representativeness,andareusually used forqualitative exploratoryanalysis.Thefivetypes of non-probability sampling are: convenience,purposive,quota,snowballand volunteer.

13.2 Learning Objectives:

After studying this lesson, learners will be able to:

1. **Define** non-probability sampling and explain its relevance in qualitative and exploratory research.
2. **Identify and describe** different types of non-probability sampling techniques, especially convenience and purposive sampling.
3. **Differentiate** between convenience sampling and purposive sampling in terms of selection method and application.
4. **Evaluate** the advantages and limitations of convenience and purposive sampling methods

13.3 ConvenienceSampling

Thisisalsoknownas'accidental'on'haphazard'sampling.Inthissampling,th e researcherstudiesallthosepersonswhoaremostconvenientlyavailableorwhoaccidental ly comeinhiscontactduringacertainperiod oftimeintheresearch.Forexample,the researcherengagedinthestudyofuniversitystudentsmight visittheuniversitycanteen, library,somedepartments,play-grounds, verandahsandinterviewcertainnumberof students.Anotherexampleisofelectionstudy.Duringelectiontimes,mediaperson nel oftenpresentman-on-the-streetinterviewsthatarepresumedtoreflectpublicopinion.In suchsampling,representativenessisnotsignificant.Themostobviousadvantag eof conveniencesample isthat it isquick and economical.But it may beavery biasedsample. Thepossiblesourcesofbiascouldbe:i)therespondentsmayhaveavestedinterestt o serveincooperatingwiththeinterviewer,and(ii)therespondentsmaybethose whoare vocal and/orwant to brag. Conveniencesamples are best utilized for exploratory research whenadditionalresearchwillsubsequentlybeconductedwithaprobabilitysample.

13.4PurposiveSampling

Inthissampling,alsoknownasjudgmentalsampling,theresearcherpurposely choosespersonswho,inhisjudgment aboutsome appropriatecharacteristicrequiredof thesamplemembers,arethought toberelevanttotheresearchtopicandareeasilyavailable tohim.Forexample,suppose,theresearcherwantstostudybeggars.Heknowsthethree areasinthecitywherethebeggarsarefoundinabundance.Hewillvisitonlythesethree areasandinterviewbeggarsofhis choiceandconvenience.Themanufacturers(ofcosmetics, oils, garments,etc.) select test marketcities because they areviewedastypical cities with demographicprofilescloselymatchingthenationalprofile. Popular journals conductsurveys in selectedmetropolitan cities to assesthe popularity of politicians and politicalparties ortoforecastelectionresults.Thus,inthistechnique,somevariablesaregivenimportance anditrepresentsthepopulationbuttheselectionofunitsisdeliberateandbasedonprior judgment.

13.5Check Your Progress-I

TRUE/FALSE

I. Non-probability sampling uses random selection.
II. Convenience sampling is also called accidental sampling.
III. Purposive sampling is based on the researcher's judgment.
IV. Convenience sampling always gives accurate results.
V. Non-probability sampling is good for early or first-stage research.
VI. In purposive sampling, the researcher picks people who are useful for the study.
VII. Non-probability sampling is always better than probability sampling.
VIII. Purposive sampling is also called judgmental sampling.

13.6 QuotaSampling

Thisisaversion of stratifiedsamplingwiththe differencethat instead of dividing thepopulationintostrataandrandomlychoosingtherespondents,itworkson'quotas' fixedbythe researcher.Intheexampleofstudying50MBAstudents from 150 students in five institutions,theresearcher fixes the quota of 10 students from each institution,out of whichfivewillbeboysandfivegirls.Thechoiceof therespondentsislefttotheinterviewer.
Determiningquotasdependsonanumberoffactorsrelatedtothenatureandtypeof research.Forinstance,theresearchermight decidetointerviewthreeboysoutoffive boys(fromoneMBAinstitution)fromfinalyearandtwofrompreviousyear,ortwo studyingthemorning course (oftwo years) and three studying theevening course

(ofthree years).Quotacanalsobefixedaccordingtotheirproportionintheentirepopulation.For instance,forstudyingtheattitudesofpersonstowardsuseof loudspeakersinreligious places in one educationalinstitution with 100 males and 50females belonging to different religions,quotacanbefixedintheratioofonefemaleforeverytwomales.

Further,quota may befixedonthe basis ofnumber of persons in each ofthe three religiousgroups.Theadvantagesofquotasamplingare:(1)itislesscostlythanothe r techniques.(2)It does not require samplingframes.(3)Itis relatively effective.(4)It can becompletedinaveryshortperiodoftime.

Itslimitationsare:(1)Itisnotrepresentative.(2)Ithasinterviewer'sbiasintheselecti on.

(3)Estimatingsamplingerrorisnotpossible.(4)Strictcontroloffieldworkisdifficul t.

13.7Snowball Sampling

Inthistechnique,the researcher beginstheresearchwiththefewrespondents whoare knownandavailabletohim. Subsequently, theserespondents giveothernames whomeet thecriteria ofresearch, who intumgivemore newnames. Thisprocess iscontinued until 'adequate'numbersofpersons areinterviewedoruntilnomorerespondentsarediscovered. Forinstance, instudying wifebattering, theresearcher mayfirstinterview thosecases whomheknows,whomaylaterongiveadditionalnames,andwhointummayg ivestill newnames. Thismethod isemployed whenthetarget population isunknown orwhenitis difficulttoapproachtherespondentsinanyotherway.Reducedsamplesizes andcosts areaclearadvantage ofsnowball sampling.Biasentersbecausea personknowntosomeone (alsointhesample) hasahigherprobability ofbeingsimilartothefirst person. Ifthereare major differences betweenthosewho arewidely known by others and thosewho are not, theremaybeseriousproblemswithsnowball sampling.

13.8Check Your Progress-II

1. What is non-probability sampling?
2. What is convenience sampling?
3. Define Quota sampling with an example.
4. In which situations is judgmental samplingmost useful?

13.9 Let Us Sum Up

Non-probability sampling is used in qualitative research when a complete list of the population is unavailable. It includes techniques like convenience, purposive, quota, snowball, and volunteer sampling. Each method has its strengths—such as low cost or ease of access—and limitations like bias and lack of representativeness. These techniques are especially helpful in exploratory research where generalization is not the main goal.

13.10 LessonEndExercise

1. Explaintheterm'populationandsample'.
2. What doyou meanbysampling?Describe briefly themaintypesofsampling methods.
3. Whatdoyoumeanbyprobabilityandnon-probabilitysampling?
4. Whatissimplerandomsampling?
5. Explaintheneedfor'sample'.

13.11 Suggested Readings

- **Babbie, E. (2010).** *The Practice of Social Research* (12th ed.). Belmont, CA: Wadsworth.A comprehensive guide to research methods, including both probability and non-probability sampling techniques.
- **Neuman, W. L. (2014).** *Social Research Methods: Qualitative and Quantitative Approaches* (7th ed.). Pearson.Explains research design, sampling types, and how to apply them in social science studies.
- **Creswell, J. W. (2013).** *Qualitative Inquiry and Research Design: Choosing Among Five Approaches* (3rd ed.). SAGE Publications.Offers deep insight into qualitative methods and when to use non-probability sampling.
- **Patton, M. Q. (2002).** *Qualitative Research and Evaluation Methods* (3rd ed.). SAGE Publications.Focuses on purposeful sampling and its application in real-world evaluations.
- **Bryman, A. (2016).** *Social Research Methods* (5th ed.). Oxford University Press.Covers a wide range of research approaches with clear examples and comparisons.

STRUCTURE

14.1 Introduction

Proposing research is a major step in conducting research for a particular programme. Thepreparationofresearchproposalisanecessaryprerequisiteintheresearch process. The researcher isrequired topropose a studyinthe form ofawell-prepared written document termed as research proposal for seeking approval ofthe proposed research project fromthe respective organization or authority. It serves asabasisfor determiningthefeasibilityoftheproject.

Itprovidesasystematicplanofprocedureforthe researcher to follow. Inorderto developadissertation or thesis, the researcher isfirst requiredtoprepareaproposal,whichisaformaldescriptionofaplantopursue astudy.

Thisprocessbegins byconsideringwhat topicstoinclude inaplan sothat readers can fully understandthe project.This initialplanningprocess ends with a presentationof yourproposal toacommittee.

14.2 Learning Objectives

Afterreadingthislesson,youshallbeableto:

- explainthemeaningofresearchproposal.
- elaboratetheimportanceresearchproposal.
- describethewritingstyleofaresearchproposal.

14.3 MeaningofResearchProposal

Aresearch proposal isasystematic planforaresearch report, initiated and developedbefore theresearch actually begins.It isusually defined asawritten document containing detailsofthe plan, procedure,possible outcomes and underlying rationale ofa studytobeconductedbyaresearcher.Itissubmittedtoaconcerned organizationor authorityforseekingitsapprovaltoconductthepproposedresearchstudy. It is likeablueprint whichthearchitectpreparesbeforetheconstructionofabuildingstarts.

Thus,aresearchproposalisanoutlineofproposed workrequiredbyuniversitiesand institutionsforthe

14.4 ImportanceofResearchProposal

Todevelopadissertationorthesis,youfirstcreateaproposal,whichisaformal descriptionofaplantoinvestigatearesearch problem.This processbegins byconsidering whattopicstoincludeinaplansothatreaderscanfullyunderstandtheproject.Thenext stepistoorganizeandformattheplantobeconsistentwithquantitativeorqualitativ e research.Thisinitialplanningprocessendswithapresentationofyourproposalt oa committee.

1. Thepurpose ofa proposal isto help aninvestigatorthinkthroughallaspects ofthe studyandanticipateproblems.
2. Thewritingofaresearchproposalllowstheresearchertoplanandreviewthe stepsthatwillbeundertakenintheresearch.
3. Itprovides anopportunity to theresearchertospotflowsinthe logic, errorsin assumptionsandevenproblemsthatarenotadequatelyaddressedbythe objectives and design of the study.
4. Itservesasaguidefortheresearcherthroughouttheinvestigation.
5. It helpstheresearcher intimemanagement and budget estimate. These estimates allowtheresearchertoplantheprojectinsuchawaythatthework progresses steadily towards the deadline.
6. Research proposal provides criteria to assess the quality of a project. Those evaluating and reviewing a studyusethesecriteria. Knowing theproperelements ofagood proposal permits evaluatorsto examine projects forthese elements, andtodetermine, oncetheresearchercompletes, whetheritfulfillsitsgoals.

14.5. Check Your Progress-I

Q1. Explain these terms:

(i) Systematicplan

(ii) American PsychologicalAssociation(APA)style

(iii)TimesNewRoman

(iv) styleofwriting

14.6.WritingStyleOfaResearchProposal

Beforewritingaresearch proposal, itisoftenvaluabletohavetheknowledge of thebasicsaboutthe styleofwritingaresearch proposal. Hence, aplanisessential and thereareavariety ofstylesaresearcher canusewhile structuring aresearch proposal.

Someorganisationsmayhavespecificrequirementswhichwillbesetoutintheapplication criteriaanditisessentialto followtheguidelines, tailoringthe proposalto addressthe specificguidelines.Thereishoweveranexpectedlevelofcontentandheadingsthatcan be broadly applied to most research proposals.

Oneofthemost demandedformatsistheAmericanPsychologicalAssociation (APA) style, whichfollows a specific format asgiveninthe American Psychological Associationguidelines.Itiswidelyacceptedstyleofdocumentation,particularlyinthe socialand behavioural sciences.APAstylespecifiesthe namesandorder ofheadings, formatting andorganisation ofcitations andreferences andthe arrangement oftables, figuresandappendices aswellasother manuscriptand documentation features. TheAPA PublicationManual providesbasicguidelinesfordocumenting bothprint andelectronic resources.Here is the general APA format:

- 12-pointfont Times NewRoman
- Double-spaced
- I-inchmargins
- AnAPA runninghead(limitedto50characters)
- Atitlepagewiththepaper'stitle(nomorethan12wordsinlength),nameofthe researcher,andthenameoftheinstitution
- Anabstract(150-200words)
- In-textcitations
- Referencespage

TheAPAstyleresearchproposalallowstheresearchertocreateaproposalwith aconsistentstyle.Specific standards areprovided inthe APA Referencing guideforresearch proposals.BelowistheresearchproposalformatasperAPA7theditionguidelines.

1. Margins,Header&Footer

All sidesmust have aI-inchmargin.The header format isright justified,withthe proposal titleontheleftandthepage numberontheright.Therunning headershouldnot be morethan50characterslong;itshould beginonthecover pageandcontinue throughoutthe proposal. Ifthetitleismore than 50 characters,reduceit toinclude thekeywords.

2. Fonts,Size&Space

APA style? callsforaseriftypeface,ideally TimesNewRoman. Useasinglefont typefontsize(12pt)throughoutyourpaper. Each wordmustbedouble-spaced, withafive-spaceindentation.

3. Abstract

Theabstractappearsafter thetitlepage.Write theabstractin250words orless, and include astatement about thestudyand methodologies that will beemployed.

4. TitlePage

Theproposalheadlinewillbepositionedinthecentre,halfwaydownthepage,in theproperformatforthetitlepage.Theheadlineisfollowedbythenameo f investigatorandthenameoftheorganization oruniversity.

5. Introduction

Theintroductionisonthenextpageofthe proposal; itcomprises the main concept behindtheresearch,thesettingofthestudy,theissuethatitwilladdress,andthe individuals whowillbenefit.Thesectioncanbeuptothree pageslong.

6. LiteratureReview

Followingtheintroduction,theresearcherisrequiredwriteabrief? reviewofthe literature? togainathoroughunderstandingoftheproblem.Theresearchermust relatetheresearchtosimilarstudiesinthefieldandincorporateastructureth at willbefollowedinthesurveyaboutexistingknowledgeinthearea.Thesectio n mightbeaslongas7pagesapproximately.

7. **ResearchMethodology**

Researcherhastolistand brieflyexplain? researchmethodologies? thatwillbe used inthe research.It should include everything from data

collection to analysis andhoweachwillbejustified.Accordingtothecriteria,APA researchmethodology canonlyhaveamaximumof5pages.

8. Limitations

Itisnecessarytodescribethestudy'spotentiallimitations;keepthistohalfapage.

9. Significance

Limitations arefollowed bythesignificance oftheresearch, itstangibility, practicability,andramifications.Theproposalmustexplainthelikelyresulta nd whatithopestoachieveinresearch.Thepartistypicallytwopageslong.

10. References,Bibliography&Citation

Includeasectionforeveryreferenceusedintheproposal'sauthoring.The? APA proposal format must have; the author and year must bementioned when quoting orparaphrasing;andthereisnobibliographysectioninAPA format.

11. Appendix

Ifany,isattachedattheend.

14.7. CheckYourProgress-II

Note:(a)Writeyouranswersinthespacegivenbelow.

(b)Compare youranswerswiththosegivenattheendofthelesson/above sub- section.

1.Fillintheblanks

i) A research proposal is a _____foraresearch report, initiated and developed before theresearch actually begins.

ii) One of the mostdemandedformats ofresearchproposal1sthe.....

iii) Themostacceptablefontstobeusedinaresearchproposalare

_____

iv) Beforewritingaresearchproposal,itisoftenvaluabletohavetheknowle dgeof the basics about the research proposal.

2. DefinethetermResearchProposal

_____

_____

3. Discussthestyleofwriting aResearchProposal.

_____

_____

4. MentiontheimportanceofwritingaResearchProposal

_____

_____

14.8.LetUsSumUp

Researchproposaliswrittenproposalbeforeconductingtheresearch.Iti sregarded assystematicplanforaresearchreport,initiatedanddevelopedbeforetheresearc hactually begins. In a proposal, theresearcher writes aboutwhat willtake placeduringthecourse of research.Itistypeofwrittendocument containing detailsoftheplan, procedure,possible outcomesand underlying rationale ofa studytobeconducted by a researcher. APAstyle shouldbeviewedasa"genre" ofwritingthatisidealforpresenting psychologicalresearch findings, particularly inacademic and professional settings.

14.9. Keyword

- **Research Plan**

  A research plan is a detailed outline of the objectives, methods, and timeline for a study. It helps guide the research process from start to finish.

- **Hypothesis**

  A hypothesis is a testable statement predicting a relationship between variables.

  It provides direction for data collection and analysis.

- **Methodology**

  Methodology refers to the overall approach and specific techniques used in research.

  It includes how data is gathered, measured, and analyzed.

- **Research Questions**

  Research questions are specific inquiries the study aims to answer. They define the focus and scope of the research work.

14.10. Lesson End Exercise

1. Discussthemeaningof ResearchProposal
2. Elaboratetheimportanceof ResearchProposal
3. DescribethewritingstyleofaResearchProposal

14.11. SuggestedReadings

- Freedman, P. (1960):Principles ofScientificResearch. NewYork: PublicAffairs Press.
- Kerlinger, F. N(2004). Foundation of Behavioral Research, NewDelhi: SurjeetPublications.
- Sidhu,**K. S.**(1984).Fundamentalsof ResearchinEducation, NewDelhi: Sterling publishers Pvt. Ltd.
- Vijay, U. and&Arvind, S(2010). Research Methodology. NewDelhi: S. Chand & Company Pvt. Ltd.
- Mishra, R.P.(2002.) Research Methodology. NewDelhi: Concept Publishing Company.
- Sansanwal, D.N.(2020).ResearchMethodologyand Applied Statistics.Delhi: ShipraPublications.
- Kothari,C.R.andGarg,G(2019).ResearchMethodology:Methodsand Techniques.NewDelhi:NewAgeInternational(P)Limited,Publishers .
- Chandra,**S.S.** and Sharma, **R.K.** (2007), Research inEducation. NewDelhi: AtlanticPublishers &Distributors (P)Ltd.
- Good,C.V.(2016).IntroductiontoEducationalResearch.Delhi:Surjee tPublications.
- Pandya,**S. R.** (2021). EducationalResearch. New Delhi: APH Publishing Corporation.
- Koul,L (2019).Methodologyof EducationalResearch.Noida,U.P.:Vikas PublishingHouse.
- Jha,AS.(2017).ResearchMethodology.NewDelhi:APHPublishing Corporation.

LessonNo.15 **UNIT-IV**

STEPSOFPREPARINGRESEARCHPROPOSAL

STRUCTURE

15.1Introduction

Aresearchproposal isintended toconvince readersthat theresearcher hasthe competence andthework-plan to completetheresearch project. Generally, aresearch proposalshouldcontainallthekeyelementsinvolvedinthe researchprocess andinclude sufficient information forthe readers to evaluate the proposed study.It outlines the importanceofresearchproblemand summarizeshowtheresearcherplanstoinvestigate the selectedresearch problem.

Theproposalhastobecrystalclear,directtothepoint, andpersuasive,makingastrong

argument forthesignificanceofthestudy, itsfuture contribution,andtheoriginalstrategy thescholarwouldemploy.

15.2 Learning Objectives

Afterreadingthislesson,youshallbeableto:

- explainthestepsofwritingresearchproposal.
- discusstheStyleofwritingBibliography/Referencesin(APA,MLA andCMS)

15.3StepsofPreparingResearchProposal

Many institutions and fundingagenciesprescribe their formats for the submission of research proposal.There may be aslight variation in the suggested formats however,a goodresearchproposalshouldcontainthreemajorsectionscomprising ofdifferentsub-

sectionsasexplainedunder:

IntroductorySection

Thissectionoftheresearchproposalshouldcontainthefollowinginformation:

1. **Titlepage:**Thetitlepageoftheproposalshouldinclude:

    a) Thetitleoftheproposedstudy.Titleisbasicallythenameofthetopicofthe researchstudy.Titleincludesimportant'keywords'thatrelatetheresearch proposal tothespecificfield ofstudy.Thetitleshould beshortand descriptive statement thatclearlyconveysthecoreideaoftheresearch proposal.

    b) Thetitlepageshould alsocontain researcher'snameand his/her identification, supervisor's name, nameofthedepartment andinstitution.

2. **Introduction:**Introduction oftheresearch proposal intends toprovide the readers withthebackgroundinformationandrationale ofthepresentstudy.Researcher organizeshis/her discussionaroundthefollowing themes:

    a) Backgroundofthestudy:Thebackgroundofstudydiscussesindepthabout thetopic.For example,ifa researcher intends to study theeffectofemotional intelligenceonjobsatisfactionofteachers,heorshehastobeginwiththe conceptofemotional intelligence anditsrelationship withjobsatisfaction. Statementoftheproblem:Statementoftheproblemisanexpansionofthe title. Here,theresearcherisrequiredtostateanddefinetheresearchproblem inclearandconciseterms.Thestatementshouldclearlyindicatethekey variables inthe study,specify thenature of populationbeing studied and suggest thepossibilityofempiricaltesting.

    b) Review of Related Literature:The theoretical and empirical framework from which the problem arises must be briefly described. Thelatestresearch trends related tothe problemshouldalso bementionedinthe section. The researcher hastoestablishthattheproblem hasitsrootsintheexistingliterature,butit needsfurther explorationtofill thegaps.A brief accountofthe relatedstudies found injournals, magazines,abstractsor periodicalsshould bemaintained to makethereadersfamiliarwithwhatisalreadyknownandalsowithwhatis unknown and unproved.It helps in eliminatingthe risk of duplicationof research andprovidesabasisforformulatinghypotheses.

    c) PurposeoftheStudy:Theinvestigatorshouldstateclearlythereasonsfor undertakingtheresearch.Aspecificresearchstudymayhavetwoormore goals.

    d) Objectivesofthestudy:Thisshouldincludethespecificobjectivestobe achievedintheproposedstudy.Theobjectivesshouldbeclearlystatedin achievableand measurableterns. Theobjectives will providethecriteria against whichtheproposedresearchmethodscanbeassessed.Objectivesshould beformedonthebasisofspecificquestionstobeanswered.

e) Formulationof hypotheses:Ahypothesisisaneducatedguessoratestable predictionbasedontheexisting literature tobetestedonthebasisofevidence. This stepestablishes the problemand thelogic underlyingtheresearchstudy. Itgivesdirectiontothedatagathering procedure.

f) Significanceofthestudy:Thesignificanceofastudyinaresearchproposal referstotheimportanceor relevance ofthe study.Itexplains whythe research isvaluable,relevant, and importantto the academic or scientific community, policymakers,or society at large. It should indicate clearly howthe results of theresearchcaninfluenceeducationaltheoryorpractice.

g) Definitionsof terms and concepts:Thisrefers to the clarification oftheterms usedinthestudyinsuchawaythattheyarepotentiallyobservable. The technicaltermslikeintelligence,motivation,creativity,stress,achievementetc. usedinthestudydonothaveaunanimousdefinition.Itbecomesobligatory onthepartoftheresearcher todefinesuchtermsoperationallybystating howthesevariableswillbeobserved and measured.

h) Delimitationsofthestudy:Delimitationsaretheboundariesthattheresearcher setsinaresearchstudy,decidingwhattoincludeandwhattoexclude.They helptonarrowdownthestudyandmakeitmoremanageableandrelevantto theresearchgoal.Inotherwords,theyaretheboundariestheresearchersets intermsofscope ofstudy,populationsizeand typeofparticipants,sampling procedure, data collection techniques,statistical techniques, development of measuringtechniquesandtheiruseinthestudy.etc.

i) Assumptions:Anassumptionisastatementwhosetruthiseitherconsidered self-evidentorhasbeensatisfactorilyestablishedbyearlierresearch.This willactasafoundationofacceptedknowledge.

ProceduralorMethodologicalSection

Thissection ismainlyfocusedondescribingplanningonthe part oftheresearcher abouttheexecutionoftheresearch. Here,theresearcheroutlinestheresearchstrategy, research design, research methodology,datasources,populationconsideration andsample size determination, data collectionmethods and tools, methods ofdata analysis.This part shouldexplain clearlyandcompletely thefollowing:

a) Population and sample: Aresearch proposal should clearly define the population from which the researcherwill draw sample. Here, the researcherisrequiredtodescribewhatheisstudying,including theunitsinvolvedin sample and thetargetpopulation aswell asthe procedurehewill useto select thesample.

b) Toolsorinstrumentsofdatacollection:Heretheresearcherisrequiredto mention about the typeoftoolsorinstruments that hewilluseforthecollection ofdatafromtheselectedsampleincludingreliabilityandvaliditytestingofthe instruments.

c) Selectionofresearch design:The research design indicates the stepsthat will betakentocarryouttheresearchandinwhat sequencetheywilloccur.

d) Procedureemployedfordata collection:Heretheresearcherisrequiredto describetheprocedureemployedforcollectingdatai.e.howhewillusethe tools andapproach thesubjects orseekthecooperation fromdifferentpersons forthecollection ofdata.

e) Dataanalysistechniques:Inthissub-sectionoftheresearchproposal,the researcher isrequiredtodescribethemethods, techniquesorprocedure employedfortheanalysisofcollecteddata.

Othercomponentstobeincludedintheresearchproposal

a) Timeschedule:Researchershouldprepareatime-scheduleforcarryingout the research effectively.Dividing the project into manageableparts and allotting timefortheireffectiveexecutionwillhelptheresearcher tocompletethestudy systematically withinstipulatedperiodoftime.

b) Budget:Theresearchproposalssubmittedtovariousagencies forfinancial assistanceshouldalsoincludearequirementof budgetneededtomeetthe expenditureincurredonvariouscomponentsfortheexecutionofthestudy.

c) EthicalConsiderations

Ethicalconsiderationsareanimportantaspectofresearchproposalandthere isa standarduniversitycodeofpractice relating toethics, which aresearchermustread and understand.Thevalueofethicsisto protecttheindividualsandtheiridentity,bothinverbal andwrittenform.Researcherisrequiredtoincludecopiesorformatofobtainingwrit ten consentfromindividualsandparentstogetapprovalfromEthicalConsideration Committee.

d) Bibliography:Inthissub-sectionoftheresearchproposal,theresearcheris requiredtowrite alist ofallthebooks,journalsor any other literature used by theresearcherinpreparingresearchproposal orliterature thatwillbeused bytheresearcherlateronduringtheexecutionofthestudy.

Appendices

Thissectionshouldproviderelevantdocuments whicharebestnot seenin themainproposal text (because they affect readability). These may be source documents, pilot study data, interview questions, surveys questionnairesinstruments,etc. Time Schedule

The researcher should prepare a time schedule forcompleting thestudy within stipulated

periodoftime.Itisadvisabletodividethestudyintophasesandassigningdatesforthe completionofdifferent components ofthestudy.

BudgetSchedule

Theresearchproposalsseekingfinancial assistancefromanexternal sourceshouldinclude abudgetproposalestimatingthefundsrequiredfortravel expenses,typing,printing,purchase of equipment,software, tools, books and other materials.

Conclusion

Theconclusioncontainstheoverallsummaryoftheproposal.

15.4 Check Your Progress 1

1 What is the main purpose of research proposal?

2 Why is it important to define research objectives in a proposal?

3 What role does a research proposal play in gaining approval?

4 Why reviewing literature isis important in proposal writing?

15.5 StyleofWriting Bibliography/References

Inwritingbooks, thesisor anyother paperswemayrecitethefindingsor workings of others.

Thissectionisaveryimportantcomponentoftheresearchproposal.Itcontainsallthe necessary literature that has been referred to in preparing research proposal or to be consulted during the research. References differfrom bibliography inthat references are those materials which have been cited inthe main text ofthe proposal indifferentplaces.

Bibliographyincludesmanyreferredaswellasmanyunreferredliterature inthetextofthe research proposal. Sometimes a book would have been consulted but not necessarily

referredtointhetext.Thus,thebibliographywillbeinclusiveofmanymaterialswhich havenotbeen referred inthetext. Ofcourse itmaycontainthereferred materials also. On theotherhand, references containbasicallythereferred materials.

Inwriting references, aresearcher shouldusean accepted stylemanual.Whenusinga stylemanual, the research(andthe literaturereview)willhaveaconsistent formatfor readersandother researchers, andthisformat willfacilitate theirunderstanding ofthe study.

AmericanPsychologicalAssociation(APA)style

ThePublicationManualoftheAmericanPsychologicalAssociation,6thedition(AP A, 20I0),stylemanualisthemost popularstyleguideineducationalresearch.Hence, the sameisemphasizedherefor

thereferenceslistedattheendofaresearchreportcalledas end-of-textreferences. InAPAform, theyare double spaced and listed alphabeticallyby author.TheAPAmanual provides examplesofthemost common kindsofend-of-text references. Belowareillustrations ofcommontypesofreferences inappropriate APA form.

TitleandSpacing

- Thereference listshould startonthenewpage.It shouldbeCentred andtitled References.
- TheentriesshouldbeDouble-spaced.
- Individual entriesshould haveahangingindenti.e.firstlineofentryisflushwiththe left margin, subsequent lines indented).

Orderofentries

Entriesarealphabetizedbyauthor'slastname.

- Worksformultipleauthorsbealphabetizedbythelastnameofthefirstlisted author.
- Multipleworksbythesamefirstauthor,butdifferentsubsequentauthorsare alphabetizedwithin thelist by the last name ofthe firstauthor,and then alphabetized amongstthemselvesbythefirstuniquelastname.
- Whenauthorisagroup,alphabetizebythefirstsignificantwordinthegroup's name.
- Works with no author shouldmove thetitle to the authorposition (before the date ofpublication)andalphabetizebythefirstsignificanttitleword.

Elementsofanentry

- Each entryusually contains the following four elements:a) author b) publication datec)titleandd)publishingdata.
- Commasgenerallyseparateitemswithinanelement.
- Periodsaregenerallyusedtoendanelement.

a) Author

- **Lastname,A.A.,LastNameB.B,&Last name,C.C.**
- Use commas between an author's last name and initials,between initialsandsuffixes, andbetweenmultipleauthors.
- Whentherearemultipleauthors,&shouldprecedethelastnamedauthor.
- Provideauthorlastnamesandinitialsforworksbyonetosixauthors.For,seven followthesixthauthorbyacommaandtheabbreviation et.al.

- Iftheworkhasnotauthor,movethework'stitletotheauthorpositionoftheentry.
- Editedbooksgenerallytreattheeditorastheauthor.Followeditornamewith (Ed.)or(Eds.)whicheverisapplicable.
- Forachapterinabook,thechapterauthoristheauthorlistedfortheentry.

b) Publicationdate

- Theyearofpublicationisenclosedinparentheses.Itusuallyfollowstheautho r name and precedes the title.
- Formagazines, newsletters and newspapers, providethe yearfollowed bythe exact dateasgiven onthe publication asmonth, monthand day, or season ofthe issuee.g.**(YYYY,**Monthdd)or**(YYYY,**Season).
- Ifnodateisavailable,enter(n.d.)

c) Title

Capitalization&italics

- For published periodicals, capitalizethefirstletterofallsignificant titlewords. In the journal article example,capitalize all words inthejournal title.
- For non-periodicals,bookchapters and articles, capitalize onlythe first word, and proper nouns, oftitlesand subtitles.
- Inthebook example,capitalize onlythefirst word inthetitleofthebook, thefirst wordfollowing acoloninthetitle,and proper nouns.
- Italicizetitlesofwholeworksforbothperiodicals and non-periodicals.Donot italicize the titles ofparts of alarger work -e.g. chapters in books, articles in journals, etc.

Periodicals

- Providethetitleoftheperiodical, thevolume number, ifany,andinclusive page numbers.
- Donotuseabbreviation vol. beforethe number, useAr4abic numerals(1,2,3, etc.) to indicate volume numbers.
- Ifa periodical doesnot usevolume numbers, include the month, season, or other designationfollowingtheyearofpublication- e.g.Author,A.A(2001,June).
- Ifajournalpaginateseachissueseparately(i.e. eachissuestartsitsnumbering withpage1)providetheissuenumberinparenthesis,exactlyafterthevolume

numbers-e.g.42(3),28-34.

II When noting pagenumbersinany entryforanewspaper article,precede number(s) with p. or pp.

d) Placeofpublicationandpublisher(non-periodical)

- Providethecity,state(orpr4ovincewhereapplicable)andcountry(ifoutsidethe United States).
- Placeacolonaftertheplaceofpublicationandprovidethenameofthepublisher. Use2-letterabbreviation forstates.
- Iftwomorepublisherlocationsarelisted,givethefirstorthehomeoffice(if known).
- Writeinfullthenameofassociations,corporationand universitypresses.Omit termslikePublishers,Co., orInc., not required toidentify thepublisher.Keep the words Books and Press.

AdditionalInformationforElectronicPublications

With increasing frequency,electronic journal publishing and materials located on theInternetarecommon today. Two waystoidentify material obtainedontheInternetare toprovideaURLoraDOI(digitalobjectidentifier)numbertothereferenceinformation.

TheURLisusedtomapdigitalinformationontheInternet.AURLcontainsseveral components:aprotocol,a host name, the path tothedocumentand the specificfile name, such ashttp://www.rlynn.co.uk/index.php?page=papers. Thewords"Retrievedfrom" precedetheURLnameofajournalarticlereference.

URLsareoftenchangedontheInternet,and scholarlypublishers haveincreasingly usedtheassignmentofa**DOI**tojournalarticlesandtodocuments.TheDOISystem provides ameans of identificationformanaging informationondigital networks (see http:/ /www.doi.org/).**ADOI**isauniquealphanumericstringassignedbyaregistrationagency toidentifycontentandprovideapersistentlinktoitslocation ontheInternet.TheDOI numberistypicallylocatedonthefirstpage oftheelectronicjournalarticle,closetothe copyrightnotice. When cited inareference,this number isplaced attheendofareference.

Book with OneAuthor

Elements of the reference

Author(s) of book-familynameandinitials..(Yearofpublication). Titleof book-italicised. Place of publication: Publisher.

Gardner,H.(1983).Framesofmind.NewYork:BasicBooks.

Koul, L.(1984).Methodology ofeducational research. NewDelhi:VikasPublishing HousePvt Ltd.

Singh, D. (2001). Emotional intelligence at work: Aprofessional guide.New Delhi: Response books.

Singh,D.(2006).Emotional intelligence atwork:Aprofessional guide(3rded.).New Delhi: Response Books.

Sternberg,R.J. (1985).BeyondIQ.NewYork: Cambridge UniversityPress.

Bookwith Two Authors

Elements of the reference

Author(s)of book-familynameandinitials,use&formultipleauthors. (Yearofpublication). Title of book - italicised. Place of publication: Publisher.

Kothari, C.R., &Garg, G(2019). Research methodology: Methodsandtechniques. New Delhi:NewAgeInternational(P)Limited,Publishers.

BookwithThreetoFiveauthors

Elementsofthereference

Author(s)of book-familynameandinitials,use&formultipleauthors.(Year ofpublication). Title ofbook - italicised. Place of publication: Publisher.

Matthews, KA,Weiss, S.M., Detre,T., Dembroski, TM., Falkner, B., Manuck,S.B. &Williams, RB.(1986).Handbook ofstress, reactivity, andcardiovasculardisease. New York: Wiley

BookwithSixorSeven Authors

Matthews, KA,Weiss, S.M., Detre,T., Dembroski, TM., Falkner, B., Manuck,S.B. &Williams, RB.(1986).Handbook ofstress, reactivity, andcardiovasculardisease. New York:Wiley

Electronic Book

Elements ofreference

Author,AA(Yearofpublication).Booktitle.DOIorRetrievedfromURL

Reichow,B. (2011). Evidence-based practices and treatments for children with autism.Retrieved from http://www.springlink.com/content/xt25 l 4

Journal Articles

PrintJournal Article-Oneauthor

Elements of the reference

Author(s)ofjournalarticle-familynameandinitials, use&formultiple authors. (Year of publication).Titleofjournalarticle. Journalname-italicised, Volume-italicised

(Issueor number), Page number(s).

Joshi,G,(2000).Neuroticism,extraversionandacademicachievementasrelatedtogender and culture. Indian Psychological Review, 54(1-2), 74-78.

Journalarticle(printorelectronic)withURL-oneauthorpaginatedbyissue

Elementsofthereference

Author(s)ofjournalarticle-familynameandinitials, use&formultiple authors. (Year of publication).Titleofjournalarticle. Journalname-italicised, Volume–italicized (Issueor number), Page number(s). Retrieved from: http://www.xxxxxxxxxx

Lynn, R. (1994). Sex differences in brain size and intelligence: Aparadox resolved. Personality and Individual Differences, 17(2), 257-271. Retrieved from http:// www.rlynn.co.uk/index.php?page=papers

Journal article (print orelectronic) with DOI- one author- paginated by issue Elements of the reference

Author(s)ofjournalarticle-familynameandinitials, use&formultiple authors. (Year of publication).Titleofjournalarticle. Journalname-italicised, Volume–italicized (Issueor number), Pagenumber(s). doi:xx.xxxxxxxxxx

Smith,J.P.(2005).Mixedmethodsresearch:Itscontroversiesandpotential.Journal of Mixed Methods Research, 3(1), 34-50. doi: 1038/0278.6133.24.2.226

TwoAuthors

Amirtha,M.&Kadhiravan,S.(2006).Influenceofpersonality ontheemotional intelligence of teachers. Edu Tracks,5(12),25-29.

ThreeAuthors

Kamalian, A.,Yaghoubi, N.&Poori, M. (2011). Emotionalintelligence and corporate entrepreneurship:Anempiricalstudy. Journal offiasicandAppliedScientificResearch, 1(6), 471-478.

Three to Five Authors

Elementsofthereference

Author(s)ofjournalarticle-familynameandinitials, use&formultiple authors. (Year of publication).Titleofjournalarticle. Journalname-italicised, Volume-italicised(Issueor number), Pagenumber(s). doi:xx.xxxxxxxxxx

Humphrey, N., Curran, A, Morris, E., Farrell, P., & Woods, K. (2007). Emotional intelligenceandeducation:Acriticalreview.EducationalPsychology,27(2),235-

254. doi:10.1080/01443410601066735.

Seven orMoreAuthors& DOI(Electronic orPrint)

Elements of reference

Author's Last Name, First Initial.Second Initial. (repeat for next five authors)... & Last Author's Name, First Initial. Second Initial. (Year). Article title: Subtitle. Journal Title, Volume(issue), page range. doi:xx.xxxxxxxxxx

Perera, K. S.,Vanassche, T.,Bosch, J.,Swaminathan, B.,Mundl, H.,Giruparajah, M., ...&Yoon,B.W.(2016).Globalsurveyofthefrequencyofatrialfibrillation-associated stroke embolic stroke ofundetermined source global registry. Stroke, 47(9), 2197-2202. doi: http://dx.doi.org/10.1161/STROKEAHA.l16.013378

MagazineArticles

Print Magazine

- Author,A.A(2002,Monthday).Titleofarticle.Titleof Magazine, volume(if any), page -number/s
- Sinha, C(2023, October30). Retelling the Epic of Ramayana.Outlook, 10,10- 12.

OnlineMagazine

- Author,A.A(2002,Monthday).Titleofarticle.Titleof Magazine, volume(if any), page-number/s. Retrieved from statement.

Newspaper

- Author, A.A(2003/7, Month day).Title of article. Titleof Newspaper p./pp., pagenumber/s
- Chapman, M. &Clarke, RC(2003,January).Emotional intelligence isaconcept thatcanbeusedinstressmanagement:AresponsetoSlaski.StressNews,15(1).

Ph.DThesis

Elementsofthereference

Author,AA(Year). Titleofdoctoraldissertation(Doctoraldissertation).Retrievedfrom/ Available from Name of database.(Accession orOrder number)

Bharti,R.(2012).A studyofcertaincognitiveandnon-cognitivevariablesinrelationto emotional intelligence of student teachers

(Doctoral thesis). Retrieved from http:// hdl.handle.net/10603/29724

Author,A (Year ofpublication). Title ofthesis ordissertation (Unpublished Doctoral dissertation ormaster's thesis). Name of lnstitution,Location.

Jerath, J.M. (1979).Astudy of achievement motivation anditspersonality motivation and ability correlates. (Unpublished Doctoral thesis). PanjabUniversity, Chandigarh.

MLA STYLE

Modern Language Association(MLA) Style, 8th edition The MLAcitation style is most commonlyused intheliberal artsandhumanitiesfields. Thefollowingdiscussionisbased ontheModernLanguageAssociationhandbook: MLA Handbook,9thEdition.Itisnot meanttoserveasasubstituteforthehandbook butasanoverviewofthemostcommon formattingguidelinesadoptedfromAShortGuidetoMLA Format (NinthEdition),The College ofSaintRoseWriting Center.

BasicBook Format

Thebasicformforabookcitationis:

LastName,FirstName.Titleof Book.CityofPublication,Publisher,PublicationDate.

*Note: the City ofPublication should only beused ifthe book was published before 1900,ifthe publisher hasofficesin more than onecountry,orifthepublisher isunknown outside NorthAmerica.

BookwithOneAuthor

Gleice,James.Chaos:MakingaNewScience.Penguin,198

7. Henley, Patricia. TheHummingbird House. MacMurray,

1999. **Book with More Than OneAuthor**

Whenabook hasmultiple authors, ordertheauthorsinthesamewaytheyarepresented inthebook.Thefirstgivennameappearsin"lastname,firstname"format;subsequent authornamesappearin"first name,lastname"format.

Gillespie,Paula, andNealLerner. TheAllynandBaconGuideto PeerTutoring.Allynand Bacon, 2000.

Iftherearethreeormoreauthors, listonlythe firstauthorfollowed bythephraseetal. (Latinfor"and others")inplaceofthesubsequentauthors'names. (Notethatthereisa periodafter"al"in"etal."Alsonotethatthereisneveraperiodafterthe"et"in"etal.").

Wysocki,AnneFrances,etal.WritingNewMedia: TheoryandApplicationsforExpanding theTeaching ofComposition. Utah StateUP, 2004.

TwoorMoreBooksbytheSameAuthor

Listworksalphabetically bytitle.(RemembertoignorearticleslikeA,An,andThe)Provide theauthor'snameinlastname,firstnameformatforthefirstentryonly.Foreachsubsequent entrybythesameauthor, usethreehyphens andaperiod.

Palmer,WilliamJ.DickensandNewHistoricism.St.Martin's,1997.

---.TheFilmsoftheEighties:A SocialHistory.SouthernIllinoisUP,1993.Periodicals

Periodicals includemagazines,newspapers,and scholarly journals.Workscitedentries for periodicalsources include three main elements-theauthorofthe article,thetitle ofthe article, and information about the magazine, newspaper,or journal. MLA uses thegeneric term"container"torefer toanyprintordigital venue(awebsiteor printjournal,forexample) inwhichanessayorarticlemaybeincluded.

Usethefollowingformatforallcitations:

Author. Title. Title of container (self-contained if book), Other contributors (translators or editors), Version (edition), Number (vol. and/or no.), Publisher, Publisher Date, Location (pp.).

2ndcontainer'stitle,Othercontributors,Version,Number,Publisher,Pubdate,Location.

ArticleinaMagazine

Citebylistingthearticle'sauthor,puttingthetitleofthearticle inquotationsmarks,and italicizing theperiodicaltitle. Follow withthedateofpublication. Remember toabbreviate themonth.Thebasicformatisasfollows:

Author(s)."TitleofArticle."TitleofPeriodical,DayMonthYear,pages.

Buchman,Dana."A SpecialEducation."GoodHousekeeping,Mar.2006,pp.143-48.

Poniewozik,James."TVMakesaToo-CloseCall."Time,20Nov.2000,pp.70-71. **Article in a Newspaper**

Cite a newspaper article asyou would amagazinearticle but note the differentpagination inmostnewspapers.Ifthere ismorethan one editionavailable forthatdate (asin an early andlateedition ofanewspaper),identify theedition afterthenewspaper title.

Brubaker,Bill. "NewHealthCenterTargets County'sUninsuredPatients." Washington Post, 24 May 2007, p. LZ0I.

Krugman,Andrew."Fearof Eating."NewYorkTimes,lateed.,21May2007,p.Al.

Ifthenewspaper isalesswell-knownorlocal publication, include thecitynameinbrackets afterthetitleofthenewspaper.

Trembacki, Paul. "BreesHopestoWinReismanforTeam."PurdueExponent[West Lafayette, IN], 5Dec. 2000, p. 20.

AReview

To cite a review,include thetitle ofthe review (ifavailable),then the phrase,"Reviewof' and provide thetitle ofthework (in italics forbooks,plays,and films; in quotationmarks forarticles,poems,andshortstories).Finally,provideperformanceand/orpublication information.

ReviewAuthor."Title of Review (if thereisone)." Review ofPerformance Title,by Author/ Director/Artist.TitleofPeriodical, DayMonthYear, page.

Seitz,MattZoller."LifeintheSprawlingSuburbs,If YouCanReallyCallItLiving."Review ofRadiantCity,directedbyGaryBumsandJimBrown. NewYorkTimes,30May2007, p.El.

AnArticleinaScholarly Journal

A scholarlyjournalcanbethoughtofasacontainer,asarecollectionsofshortstoriesor poems,atelevisionseries,orevenawebsite.Acontainercanbethoughtofasanything thatisapartofalargerbodyofworks.Inthiscase,citetheauthor andtitleofarticle as younormallywould.Then,putthetitleofthejournalinitalics.Include thevolumenumber ("vol.")andissuenumber("no.")whenpossible,separatedbycommas.Finally,addthe year and page numbers.

Author(s)."TitleofArticle."Titleof Joumal,Volume,Issue,Year,pages.

Bagchi, Alaknanda."Conflicting Nationalisms:The Voice oftheSubaltern inMahasweta

Devi'sBashaiTudu."TulsaStudiesinWomen'sLiterature,vol.15,no.1,1996,pp.41-50.

Duvall,JohnN."The(Super) Market placeof lmages4:TelevisionasUnmediated Mediation

m

DeLillo's WhiteNoise."ArizonaQuarterly,vol.50,no.3,1994,pp.127-53.

TheChicagoManualofStyle(CMSSTYLE)

TheChicagoManualofStyleisan AmericanEnglish styleguide publishedbytheUniversity of Chicago Press since 1906. It is used widely in many academic disciplines and is considered thestandardforUSstyleinbookpublishing. Chicago-stylesourcecitations comeintwovarieties: (1)notesandbibliography and (2)author-date.

1. **NotesandbibliographySystem:**Thenotesandbibliographysystemispreferre d bymanyworkinginthehumanities-including literature,history,andthearts.Inthis system, sources are cited in numbered footnotes or endnotes. Each note corresponds to a raised

(superscript)number inthetext. Sourcesarealsousually listed in a separate bibliography. The notes and bibliography system can accommodateawidevarietyofsources,includingunusualonesthatdon'tfitneatly into the author-date system.

2. **Author-Date System:** The author-date system ismore common inthe sciences and social sciences. Inthis system,sources arebriefly cited inthetext, usually in parentheses,byauthor'slastnameandyearofpublication.Eachin-textcitation matchesupwithanentryinareferencelist,wherefullbibliographic informationis provided.

ThefollowingdiscussionisadoptedfromChicago-Style CitationQuickGuideandthe author-date systemisemphasised forcitation purpose.

Book

Referencelistentries(inalphabeticalorder)

Grazer, Brian, and CharlesFishman.2015.A CuriousMind: The Secret to a Bigger Life. NewYork: Simon& Schuster.

Smith, Zadie. 2016. Swing Tim. NeYork: Pengun Press.

Chapter or other part of an edited book

Inthereferencelist, includethepagerangeforthechapter or part. Inthetext, citespecific pages.

Referencelistentry

Thoreau,HenryDavid.2016."Walking." InTheMakingoftheAmericanEssay, edited by John D'Agata, 167-95. Minneapolis:Graywolf Press.

Insomecases,youmaywanttocitethecollectionasawholeinstead.

Referencelistentry

D'Agata,John, ed.2016. TheMaking oftheAmericanEssay. Minneapolis:GraywolfPress.

Translatedbook

Referencelistentry

Lahiri,Jhumpa.2016.InOtherWords.TranslatedbyAnnGoldstein.NewYork:Alfred AKnopf

E-book

Forbooksconsultedonline,include aURLorthenameofthedatabaseinthereference list entry. For other types ofe-books, name the format. If no fixed page numbers are available,citeasectiontitleorachapterorothernumberinthetext,ifany(orsimplyomit).

Referencelistentries(inalphabeticalorder)

Austen,Jane.2007.PrideandPrejudice.NewYork:PenguinClassics. Kindle.

Borel, Brooke. 2016. The Chicago Guide to Fact-Checking. Chicago: University ofChicago Press. Pro Quest Ebrary.

Kurland,PhilipB., andRalphLerner,eds.1987.TheFounders'Constitution. Chicago: UniversityofChicagoPress. http://press-pubs.uchicago.edu/founders/.

Melville, Herman. 1851. Moby-Dick; or,TheWhale. NewYork: Harper &Brothers. http://mel.hofstra.edu/moby-dick-the-whale-proofs.html.

Journalarticle

Inthereferencelist,includethepagerangeforthewhole article.Inthetext, citespecific pagenumbers. Forarticles consultedonline, include aURL orthenameofthedatabasein the reference listentry. Manyjournal articleslist aDOI (Digital ObjectIdentifier). ADOI formsapermanentURLthatbeginshttps://doi.org/.ThisURLispreferabletotheURL that appears in your browser's address bar.

Referencelistentries(inalphabeticalorder)

Keng, Shao-Hsun, Chun-Hung Lin, andPeterF. Orazem. 2017. "Expanding College AccessinTaiwan,1978-2014:EffectsonGraduateQuality andIncomeInequality."Journal ofHumanCapital 11, no. 1 (Spring): 1-34. https://doi.org/10.1086/690235.

LaSalle,Peter.2017."Conundrum:AStoryaboutReading."NewEnglandReview38 (1):95-109.ProjectMUSE.

Satterfield,Susan.2016."LivyandthePaxDeum."ClassicalPhilology 111,no.2(April): 165-76.

Journalarticlesoftenlist manyauthors, especiallyinthesciences. Iftherearefourormore authors,listuptotenintherefercencelist;inthetext,listonlythefirst,followedbyetal. ("and others"). For more thanten authors (not shown here), list the first seven inthe reference list, followed byet al.

Referencelistentry

Bay, RachaelA., Noah Rose, RowanBarrett,

LouisBernatchez,CameronK.Ghalambor, Jesse**R.**Lasky,RachelB.Brem,StephenR.Palumbi, andPeterRalph. 2017. "Predicting Responses to Contemporary Environmental Change Using Evolutionary Response Architectures."AmericanNaturalist189,no.5(May):463-73.https://doi.org/10.1086/691233.

Newsormagazinearticle

Articlesfromnewspapers or newssites, magazines, blogs, andthelikearecited similarly. Inthereference list, it can behelpful torepeat theyearwith sources that arecited also by month and day. Page numbers, ifany, can becited inthe text but are omitted from a referencelistentry.Ifyouconsulted thearticleonline,includeaURLorthenameofthe database.

Referencelistentries(inalphabeticalorder)

Manjoo, Farhad. 2017. "Snap Makes a Bet on the Cultural Supremacy ofthe Camera." NewYorkTimes,March8,2017. https://www.nytimes.com/20l7/03/08/technology/snap-makes-a-bet-on-the-cultural-supremacy-of-the-camera.html.

Mead,Rebecca.2017."TheProphetof Dystopia."NewYorker,April17,2017.

Pai,Tanya.2017."TheSquishy,SugaryHistoryofPeeps."Vox,April11,2017.http://www.vox.com/culture/20l7/4/11/15209084/peeps-easter.

Pegoraro, Rob.2007. "Apple'siPhoneIsSleek, Smart and Simple."Washington Post, July 5, 2007. Lexis Nexis Academic.

Book review

Reference list entry

Kakutani, Michiko. 2016. "Friendship TakesaPathThatDiverges." ReviewofSwing Time, byZadieSmith. NewYorkTimes, November 7, 2016.

Interview

Referencelistentry

Stamper,Kory. 2017. "From'F-Bomb' to 'Photobomb,'How theDictionaryKeepsUp withEnglish."InterviewbyTerryGross.Fresh Air,NPR,April19,2017.Audio,35:25. http://www.npr.org/2017/04/19/524618639/from-f-bomb-to-photobomb-how-the- dictionary-keeps-up-with-english.

Thesis ordissertation

Reference list entry

Rutz,CynthiaLillian.2013. "KingLearandItsFolktaleAnalogues." PhDdiss.,University ofChicago.

Website content

Itisoften sufficientsimply todescribe webpages and other website contentinthetext ("As of May 1,2017, Yale'shome pagelisted ..."). Ifamoreformal citation isneeded, it maybestyledliketheexamplesbelow. Forasourcethatdoesnotlist adateofpublication orrevision,use(for"nodate")inplaceoftheyearandincludeanaccessdate.

Referencelistentries(inalphabeticalorder)

Bouman, Katie.2016. "How to Take aPicture ofaBlack Hole."FilmedNovember 2016 at TEDxBeaconStreet, Brookline, MAVideo, 12:51. https://www.ted.com/talks/katie_bouman_what_doesablack_hole_look_like.

Google. 2017. "Privacy Policy." Privacy &Terms. Last modified April 17,2017. https:// www.google.com/policies/privacy/.

YaleUniversity.n.d."AboutYale:YaleFacts."AccessedMay1,2017.https://www.yale.edu/about-yale/yale-facts.

Socialmediacontent

Citationsofcontentsharedthroughsocialmediacanusuallybelimitedtothetext(asinthe first examplebelow). Ifamoreformal citationisneeded, areferencelist entrymaybe appropriate.Inplaceofatitle,quoteupto thefirst160charactersofthepost. Comments arecitedinreference to theoriginal post.

Text

ConanOBrien'stweetwascharacteristicallydeadpan:"Inhonorof EarthDay,I'mrecycling my tweets" (@ConanOBrien,April 22, 2015).

Referencelistentries(inalphabeticalorder)

ChicagoManual ofStyle. 2015. "Istheworld readyforsingular they?Wethought soback in1993."Facebook,April17,2015.https://www.facebook.com/ChicagoManual/posts/10152906193679151.

Souza, Pete (@petesouza).2016. "President Obama bidsfarewell to President

Xi of China attheconclusion oftheNuclear Security Summit." Instagram photo,April 1, 2016. https://www.instagram.com/p/BDrmfXTtNCt/.

15.6 CheckYourProgress-II

Note:(a)Writeyouranswersinthespacegivenbelow.
(b)Compareyouranswerswiththosegivenattheendofthelesson/abovesub-section.

1. Fillintheblanks

(i) A_____should containallthekey elements involved intheresearch process.

(ii) Title is basically the _____of the topic of the research study.

(iii) Statementoftheproblemisan_____of thetitle.

(iv) Researcher should prepare a _____for carrying out the research effectively.

(v) TheMLAcitationstyleismostcommonlyusedinthe_____and _____fields.

2. Enumeratethestepsfollowedinpreparingresearchproposal.

_____

_____

3. WritethebasicfeaturesofAPA style ofwriting aResearchProposal.

_____

_____

4. Writethebasicfeaturesof MLAstyleofwriting aResearchProposal.

_____

_____

15.7 LetUsSumUp

Writingaresearchproposalisachallenging taskduetotheconstantlyevolving trendsinthefieldofresearch.A researcherisrequiredtohaveadetailedunderstandingof

variousstylesofwritinganappropriateresearchproposal.A wellwrittenresearchproposal should communicatetheresearcher's knowledgeofthefield. Itshouldfollowadiscernible logicfromtheintroductiontopresentationoftheappendices.Moreover,differentcitation styleslikeMLA,APA,Chicago,andHarvard areusedforbibliographyandreferences. However,MLA,APA,andChicago arebyfarthemost commonlyusedbyhighschool and college students.

15.8Keywords

Bibliography: A **bibliography** is a list of all the sources consulted or read while preparing a research work, whether they are cited in the text or not.

Reference: A **reference** is a specific source that is **directly cited or quoted** in the research paper or project. It supports specific facts, arguments, or findings in your study.

Reference Style: A **reference style** is a standardized format used to cite sources in academic writing. Common styles include **APA**, **MLA**, **Chicago**, and **Harvard**, each with different rules for formatting citations and bibliographies.

15.9LessonEndExercise

1. DiscussthestepsofpreparingaResearchProposal.
2. ElaboratetheAPAstyleofwriting aResearchProposal.
3. IllustrateMLAstyleofwriting aResearchProposal.
4. ExplainCMSstyleofwriting aResearchProposal

15.10 SuggestedReadings

- Freedman, P.(1960):Principles ofScientificResearch.NewYork:PublicAffairs Press.
- Kerlinger,F.N(2004).Foundationof BehavioralResearch,NewDelhi:SurjeetPublications.
- Sidhu,**K.S.**(1984).Fundamentalsof ResearchinEducation,NewDelhi:Sterling publishers Pvt. Ltd.
- Vijay,U.and&Arvind, S(2010).ResearchMethodology. NewDelhi:S.Chand & Company Pvt. Ltd.
- Mishra, R.P.(2002.) Research Methodology. NewDelhi: Concept Publishing Company.
- Sansanwal, D.N.(2020).ResearchMethodology and Applied Statistics.Delhi: ShipraPublications.
- Kothari,C.R.andGarg,G(2019).ResearchMethodology:Methodsand Techniques.NewDelhi:NewAgeInternational(P)Limited,Publishers.

- Chandra, S.S. and Sharma, R.K. (2007), Research inEducation. New Delhi: AtlanticPublishers &Distributors (P)Ltd. Good,C.V.(2016).IntroductiontoEducationalResearch.Delhi:SurjeetPublications.
- Pandya,**S. R.** (2021). EducationalResearch. New Delhi: APH Publishing Corporation.
- Koul,L (2019).Methodologyof EducationalResearch.Noida,U.P.:Vikas Publishing House

MASTER'S DEGREEPROGRAMMEIN**EDUCATION (M.A.EDUCATION)**

CHOICE BASED CREDIT SYSTEM

SEMESTER-I

SyllabusfortheExaminationtobeheldinDecember2023,2024and2025

Course No. **Title**:**IntroductiontoEducationalResearch**

PSEDTC104 Credits: 4 **Maximum Marks**: **100**

Minor Test - I: **10**

Minor Test-II: **10**

Internal Assessment Assignment10

Major Test: **70**

LearningOutcome:

1. Studentswillbeorientedaboutresearchanditsapplicationinthefieldofeducation.
2. Students willunderstandvarioustypesofeducationalresearch.
3. Studentswillbeabletoselectresearchproblem.
4. Studentswillunderstand varioussamplingtechniquesusedineducationalresearch.
5. Studentswillbeabletopreparearesearchproposal

CourseContents:

Unit-I

EducationalResearch

- Meaning,natureandscope
- Needand Purpose
- Areasof EducationalResearch:Philosophical,PsychologicalandSociological
- TypesofEducational Research -Fundamental, Applied andActionResearch (Meaning, Purpose, Steps, Characteristicsand Differences)
- Scientificenquiryandtheorydevelopment

Unit-II

ResearchProblem

Selection(Problemsanditssources)

- Evaluation(Criteria)
- Delineating and operationalizingvariables Review of RealtedLiterature :Meaning andImportanceHypothesis :Meaning,SourcesandTypesCharacteristicsofa goodHypothesisImportance,DifferencebetweenAssumptionandHypothesis

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MASTER'S DEGREEPROGRAMMEIN**EDUCATION (M.A.EDUCATION)**

CHOICE BASED CREDIT SYSTEM

SEMESTER-I

SyllabusfortheExaminationtobeheldinDecember2023,2024and2025

Course No. **Title**:**IntroductiontoEducationalResearch**

PSEDTC104 Credits: 4 **Maximum Marks**: **100**

Minor Test - I: **10**

Minor Test-II: **10**

Internal Assessment Assignment10

Major Test: **70**

Unit-III

PopulationandSampl
e

- ConceptofPopulation,Sample
- Characteristicsofagoodsample
- TechniquesofSampling:ProbabilityandNon-Probability

Probability Sampling:Simple random, Systematic random, Cluster, Stratified andMulti- stageSampling,Non-ProbabilitySampling:Purposive,Quota,Incidentialsampling

CourseContents:

Unit-IV

ResearchProposal

Meaning, Importance andWriting styleStepsofPreparingResearchProposal

Styleofwriting Bibliography (APA, MLA and CMS)

ModesofTransaction:Lecture-cum-discussion,projectandmethodandpractical

Note for paper setting:

ThereshallbetwotestsoneAssignmentaspartofMinorEvaluationonemajortest attheendofsemesterineachsemester.Thestudent shallbecontinuouslyevaluatedduring theconduct ofeach course onthebasis oftheir performance asfollows:

Theory	Syllabusto be covered in the examination	Time allotted for the examination	%weightage(marks)
MinorTest-I	UnitI&UnitII	SixtyMinutes	10Marks
MinorTest-II	UnitI&UnitII	SixtyMinutes	10Marks
IAA			10 mark(two questionsof5marks each)
MajorTest	UnitIto IV	ThreeHours	70marks

MASTER'S DEGREEPROGRAMMEINEDUCATION (M.A.EDUCATION)

CHOICE BASED CREDIT SYSTEM

SEMESTER-I

SyllabusfortheExaminationtobeheldinDecember2023,2024and2025

CourseNo.PSEDTC104R	**Title:IntroductiontoEducationalResearch**	
Credits:4	**Maximum Mark**:	**100**
	Minor Test - I	**10**
	Minor Test-II:	**10**

Internal Assessment Assignment10

Major Test: 70

EssentialReadings:

1. Anastasi,Annie(1997).Psychological,PrenticeHaall.
2. Best,J.W.(2005),ResearchinEducationPerson.
3. Freeman,Frank,S.(1953)TheoryandpracticeofPsychologicalTestingHolt
4. Good,C.V(1971).The Methodology of Educational Research,NewYork.
5. Hayman,J.L(1966).ResearchinEducation.Ohio

SuggestedReadings:

6. Mouly,GJ.(1978).TheScienceof Education Research.Boston.
7. Sukhia&Mehrotra(1966)IntroductiontoEducationalResearchBombay.
8. Travers, M.W.R.(1969)IntroductiontoEducationalResearchMacmillan &Co.

NoteforPaperSetters(MajorType)

Thequestionpaperwillcontainlongandshort answertypequestions.Therewillbetotal ofeightlonganswertypequestions(twoquestionsfromeachunit withinternalchoice)and thecandidates willberequiredtoansweronequestionfromeachunit.Eachlonganswer typequestionwillcarry5marks. QuestionNo. 1willbecompulsory and shallhave04 shortanswertypequestions(100wordsperquestion).Shortanswertypequestionswill befrom alltheunits. Eachshortanswertypequestionwillcarry2.5 marks.

M.A. EDU

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Dr.AnuradhaGoswami
CourseCo-ordinator

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INTRODUCTIONTOEDUCATION

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