

Global Health Research: Designs and Methods by Eric Green Module 3 Learning Objectives			
Module	Chapter	LO	Objective
3	6	6.1	Define theory of change and explain its significance in research design
3	6	6.2	List the common components in a theory of change model as identified by the DFID
3	6	6.3	Create a theory of change diagram for a given research problem statement with the following components: research problem, assets, desired results, influential factors, strategies, and assumptions.
3	6	6.4	Interpret a theory of change diagram
3	6	6.5	Evaluate the strengths and weaknesses of a given theory of change diagram
3	6	6.6	Explain the limits of conceptual models
3	6	6.7	Use the health behavior model and information-motivation-behavioral skills model to create theory of change models
3	6	6.8	Interpret the following type of models: health behavior, IMB, and path diagrams
3	6	6.9	Define structural equation modeling (SEM)
3	6	6.10	Explain how directed acyclic graphs (DAGs) are used in epidemiology
3	6	6.11	Interpret a DAG and be able to create a DAG given certain variables
3	6	6.12	Explain the role of an epidemic model and be able to interpret an example
3	6	6.13	Explain how statistical models are typically used
3	6	6.14	Distinguish between stochastic and non-stochastic variables.
3	6	6.15	Explain how models are typically presented in the field of economics
3	6	6.16	Explain the role of results framework for research methods
3	6	6.17	Interpret a results framework diagram.
3	6	6.18	Define "logic model" and explain its role in global health
3	6	6.19	List the five components of logic models and what each component contains
3	6	6.20	Interpret a given logic model
3	6	6.21	Create a logic model on a given research problem
3	7	7.1	Be able to define, identify, and give examples of the following terms: construct, outcome, indicator, instrument, variable, and respondent
3	7	7.2	Provide synonyms for the term "outcome"
3	7	7.3	Create a logical flow from a given research problem to the measurement of the primary study outcomes/constructs
3	7	7.4	Distinguish between and be able to identify primary and secondary outcomes
3	7	7.5	Define "operationalize"
3	7	7.6	Define each aspect of the DREAMY acronym
3	7	7.7	Be able to apply the DREAMY acronym
3	7	7.8	Understand the importance of using international standards and be familiar with the WHO Global Reference list and the UN's SDGs
3	7	7.9	Explain why composite measures are sometimes used for single-item indicators
3	7	7.10	Define, be able to identify, and give examples of "indexes"
3	7	7.11	Explain some of the considerations that go into the formation of an index, including the use of principal components analysis
3	7	7.12	Differentiate between indexes and scales
3	7	7.13	Define, be able to identify, and provide examples of latent and manifest variables
3	7	7.14	Explain how the following methods are used to create scales: exploratory factor analysis and confirmatory factor analysis
3	7	7.15	Distinguish between refined and non-refined methods of scoring scales, and list pros and cons of each approach
3	7	7.16	Evaluate the psychometrics of a given measure
3	7	7.17	Define, be able to identify, and give examples of the different types of reliability: test-retest, interitem, interrater
3	7	7.18	Explain how item-total correlations are used to calculate interitem reliability
3	7	7.19	Interpret Cronbach's alpha to measure internal consistency
3	7	7.20	Interpret Cohen's kappa coefficient to measure interrater reliability
3	7	7.21	Define, be able to identify, and give examples of the different types of validity: face, construct (convergent and discriminant), content, and criterion-related
3	7	7.22	Interpret a confusion matrix
3	7	7.23	Interpret, calculate, and be able to describe the relationship between the following metrics: prevalence, accuracy, sensitivity, false negative rate, specificity, false positive rate, positive predictive value, false discovery rate, negative predictive rate, negative predictive value, false omission rate, positive likelihood ratio, and negative likelihood ratio
3	7	7.24	Interpret a receiver operating characteristic (ROC) curve.
3	7	7.25	Be able to identify indicators throughout the causal chain
3	7	7.26	Define and be able to identify "process indicators"
3	7	7.27	Define "impact evaluations"
3	7	7.28	Discuss how impact evaluations might differ depending on the interested party
3	7	7.29	Define "treatment fidelity" and explain how low treatment fidelity affects validity
3	7	7.30	Define and recognize examples of treatment compliance
3	7	7.31	Explain the difference between treatment fidelity and treatment compliance.
3	7	7.32	Explain the difference between one-sided and two-sided non-compliance.
3	7	7.33	Define, be able to recognize, and give examples of the following types of process indicators: inputs, activities, and outputs.
3	7	7.34	Be able to recognize and organize indicators by steps in a logic model
3	8	8.1	Define instrument
3	8	8.2	Explain the role of surveys in global health research
3	8	8.3	Explain each of the steps of designing a survey instrument
3	8	8.4	Explain why using standard questionnaires and items is more beneficial than creating your own
3	8	8.5	Utilize DHS model questionnaires to inform your own survey
3	8	8.6	Be able to locate questionnaires in literature to aid in the development of your own questionnaires
3	8	8.7	Define cognitive interviewing
3	8	8.8	Explain why cognitive interviewing and pre-testing are important to designing a survey
3	8	8.9	List some common problems to writing good survey questions
3	8	8.10	Critique and suggest improvements for a given survey question
3	8	8.11	Write examples of "good" and "bad" survey questions
3	8	8.12	Define, be able to recognize, and give examples of close-ended and open-ended response options
3	8	8.13	Define, be able to recognize, and give examples of the following types of variables: dichotomous, nominal, ordinal
3	8	8.14	Define, be able to recognize, and give examples of forced choice and non-forced choice Likert-type items
3	8	8.15	Explain the advantages of a forced choice response item
3	8	8.16	Define, and be able to recognize a visual analogue scale
3	8	8.17	Explain the gold standard of translation in preparing a survey
3	8	8.18	Be able to define and give pros and cons of the following types of survey administration: secret ballot, CAPI, CASI, ACASI.
3	8	8.19	Explain why translation alone does not make an instrument valid for measuring a construct in another socio-cultural setting.
3	8	8.20	List and explain each of the six questions necessary to appraise the cross-cultural validity of an instrument
3	8	8.21	Assess the cross-cultural validity of a given instrument.
3	8	8.22	Be able to define, identify, and give examples of the following terms: semantic equivalence, technical equivalence, predictive validity, diagnostic validity
3	8	8.23	Be able to define, identify, give pros/cons of and give examples of the following types of non-survey instruments: direct observation (including random spot checks, mystery clients, and incognito enumerators), physical/environmental tests, biological samples, anthropometric measures, vital signs, clinical examination, tests of physiological function, medical imaging, tracking devices, GIS and remote sensing, standardized tests, vignettes, behavioral games, list randomization, purposive
3	8	8.24	Suggest the use of different non-survey instruments for a given research question.
3	8	8.25	Explain how qualitative methods are best designed in order answer qualitative research questions
3	8	8.26	Define in-depth interviews, and be able to describe the key components of a good interview.
3	8	8.27	Explain the main strategies for eliciting more information from participants in in-depth interviews, and be able to provide examples.
3	8	8.28	Distinguish between and provide examples of direct and indirect probes.
3	8	8.29	List some common mistakes that interviewers make.
3	8	8.30	Be able to identify and explain the most appropriate qualitative methods to be used given a research question and setting.
3	8	8.31	Explain the uses of a focus group in qualitative methods.
3	8	8.32	Describe the best practices for administering a productive focus group session.
3	8	8.33	Define the following focus group activities: free listing and card sorting
3	8	8.34	Explain the uses of participant observation in qualitative methods.
3	8	8.35	Describe the best practices for engaging in participant observation
3	8	8.36	Define and be able to identify the use of grounded theory in qualitative methods.
3	8	8.37	List the different scenarios where the use of mixed-methods is desirable.
3	8	8.38	Be able to define, identify, and give examples of the following types of mixed-methods designs: convergent, explanatory sequential, exploratory sequential
3	8	8.39	Be able to identify and explain the most appropriate mixed methods design to be used given a research question and setting.