

PY2103 Statistics Cheat Sheet by NothingOriginal via cheatography.com/205475/cs/43853/

Characteristics (C) / Assumptions (A) of Research		
Control (C)	Holding constant or eliminating extraneous variables to establish cause-and-effect relationships.	
Operationalism (C)	Defining scientific concepts by the specific operations used to measure them. This includes multiple operationalism, where constructs are represented by multiple measures.	
Replic- ation (C)	The reproduction of results from one study in additional studies to verify findings.	
Uniformity or Regularity in Nature (A)	The assumption that there are consistent and lawful relationships in nature.	
Reality in Nature (A)	The belief that the phenomena studied by scientists are real and observable.	
Discoverability (A)	The assumption that these regularities and realities can be discovered through scientific investigation.	

Research Approaches		
Research Settings	Field Experiments, Laboratory Experiments, Internet Epxeriments	
Field experi- ments (RS)	Artificiliaty not a problem, but cannot control extraneous variables like in a lab	
Laboratory experi- ments (RS)	Ability to control extranueous variables, but introduce artificiality and poor ecological validity	
Internet experi- ments (RS)	Easy access, large samples and low cost, but lack of experimenter control, self-s- election, drop out and multiple participant submissions	
Descriptive Research (T)	Observing, recording and describing behaviour	

Research A	Approaches (cont)
Relati- onal/P- redictive Research (T)	Describing and detecting/predicting relationships
Causal Research (T)	Describing behaviour, predicting relationships AND exploring cause-and-effect
Qualit- ative Research (A)	Non-numerical, interpretive approach
Quanti- ative Research (A)	Numerical data
Mixed Methods (A)	Mixes Quantitative and Qualit- ative Research for more complete account
Quanti- ative Experi- mental	Before making causal claim, three criteria: Co-variation (changes must be correlated), Temporal ordering (cause must precede effect), no Alternate Explanations
Between- subjects design	Different participants exposed to each level of IV



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Research Approaches (cont)			
Within-su- bjects design	All participants exposed to all levels of the IV		
Ads/Disads of Experi- mental Research	Causal inference, ability to manipulate variables, control	Does not test effects of extraneous variables, artificiality, inadequate method of scientific inquiry	
Quanti- tative Non- exper- imental	No manipulation of the IV, descriptive research, identifies factors/relationships to form hypotheses to then be tested through experimental		
Types of Quan Non- Exper- imental	Correlational study, Natural manipulation, cross-sectional and longitudinal		

Research A	Approaches (cont)	
Ads/Dis-	Research	Sometimes
Ads of	objectives of	false
Each	description	assumption of
Type	and predic-	causation,
	tion,	false
	Research	assumption of
	objectives of	causation,
	description	cross-sectio-
	and predic-	nal/longi-
	tion, Multiple	tudinal do not
	Groups/Time	always
	points to	produce
	consider	similar results
Streng-	Many different	Difficult to
hts/We-	data collection	Generalise,
aknesses	methods,	varying
of Qualit-	good for	interpret-
ative	describing/u-	ations,
Research	nderstanding,	objective
	provides data	hypothesis
	to develop	testing
	theory	procedures
		not always
		used

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ion of n, ion of n, ctio-co not esults		Questi- onnaires	Measures participants' opinions and provides self-r- eported demogr- aphic info. Closed- ended or open-ended questionn- aires	Efficient for large sample, standardised format for easy comparison	Responders bias, limited depth info, poten for merpreation
se, sisis res rys	, /e	Existing Data	Collection of data that was left behind/used for something different before the current research. Documents, physical data, etc.	cost-effe- ctive, time- saving, allows for longitudinal studies	data be incor lete/c ated of cc over colle meth
effect if repson- dents know they are being observe nvest- gator effects (person bias), data analysis s time-	e ed, nal	Interview	Can be through multiple mediums (face-to-face, phone, etc). Can be synchronous (happens in real-time) or asynchronous (over-time)	Good for measuring attitudes, allows for probing, in- depth info, useful for hypothesis testing	Peor migh recal imporinfo, reach effect investigate effect and incommendation consumers.
oias), data analysis	s ·C-		real- asyr	time) or nch-	time) or nch- ous

Six Data Collection Methods (cont)



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Six Data Collection Methods

watches

records

events/be-

haviours.

Naturalistic

Laboratory

Observ-

ations

and

or

Researcher

Obser

vations

Provides

firsthand

inform-

ation,

allows for

study of

natural

behaviour,

captures

non-

verbal cues,

usually

explorato-

ry/open-

ended

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Six Data Collection Methods (cont)

SIX Data	Collection ivie	uious (com)	
Focus Groups	Collection of data in a group situation where moderator leads discussion with a small group	Useful for exploring ideas and concepts, provides window into internal thinking, in-depth info, can be taped	Can be ex difficult to find good moderator reactive and invest- igator effects, measur- ement validity low
Tests	Data collection instru- ments designed to measure something. Standa- rdised (existing, tested in previous research) or Resear- cher-cons- tructed (new, often specifically developed to test for	Provides measures of many characteristics, usually alr developed, availability of data to reference, easy data analysis	Can be ex reactive participant effects, might not be appropriate for certain samples, openended Qs not avail



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variables)

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