



...in educational and psychological measurement inferences are drawn from scores, a term used here in the most general sense of any coding or summarization of observed consistencies on a test, questionnaire, observation procedure, or other assessment device.

Messick (1989, p. 14)



Survey Research

Professor Glenn Fulcher

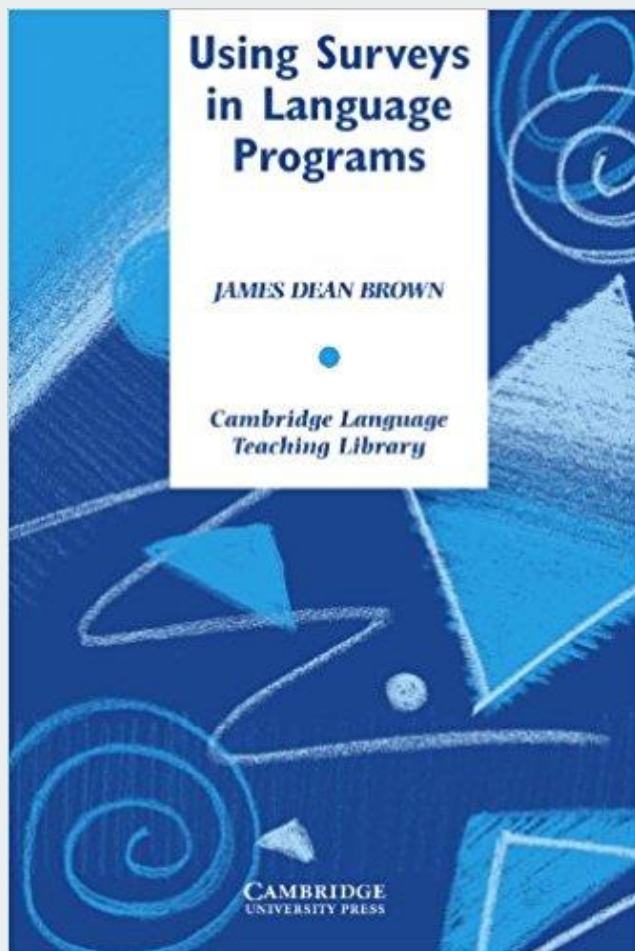


Use of Questionnaires I

- Ask a clear, unambiguous, research question
- What data do you need to answer your question?
- What is the most appropriate method to collect this data?
- How will you analyse the data?



The Book to Read





Use of Questionnaires II

- Method for primary data collection
- Quick and relatively cheap to administer
- Useful for gathering beliefs and opinions
- Necessary to define the population from which to draw a random sample
- Difficult to design and validate
- Usually requires a pilot study
- Remember that we are dealing with perceptions! This is especially true if recollection is required.



Use of Questionnaires III

Open Ended Responses

- Tell me about your reading habits?
- What do you like to study in your spare time?

Dichotomous Responses (Yes/No)

- Do you read books at home?
- Do you study English when not at school?

Continuous Responses (Likert)

- How often do you read in your spare time?
- How often do you study English out of school?

Never

Rarely

Sometimes

Frequently



SPSS Data Types

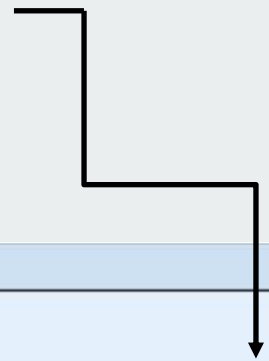
1 Nominal



2 Ordinal



3 Scale



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	id	Numeric	3	0		None	None	8	Right	Scale
2	Gender	Numeric	3	0	Gender	{1, MALES}...	None	8	Right	Nominal
3	age	Numeric	3	0		None	None	8	Right	Scale
4	marital	Numeric	8	0	marital status	{1, SINGLE}...	None	8	Right	Nominal
5	child	Numeric	5	0	child	{1, YES}...	None	8	Right	Nominal
6	educ	Numeric	5	0	highest educ c...	{1, PRIMAR...	None	8	Right	Ordinal
7	source	Numeric	8	0	source of stress	{1, WORK}...	None	8	Right	Nominal
8	smoke	Numeric	8	0	smoker	{1, YES}...	None	8	Right	Nominal
9	smokenum	Numeric	8	0		None	None	8	Right	Scale

Variable View



SPSS Data Types

	id	Gender	age	marital	child	educ	source	smoke	smokenu m
1	415	2	24	4	1	5	7	2	.
2	9	1	39	3	1	5	1	1	2
3	425	2	48	4	1	2	4	2	.
4	307	1	41	5	1	2	1	2	0
5	440	1	23	1	2	5	1	2	0
6	484	2	31	4	1	5	7	2	.
7	341	2	30	6	2	4	8	2	0
8	300	1	23	2	2	5	1	1	100
9	61	2	18	2	2	2	2	1	40
10	24	1	23	1	2	6	.	2	0
11	138	1	27	1	2	3	1	1	100
12	184	2	34	4	1	5	5	2	0
13	183	1	35	1	2	4	7	2	0
14	144	2	43	4	1	2	2	2	.
15	57	1	50	4	1	4	1	2	0
16	491	1	57	4	2	4	6	1	200
17	41	2	37	6	1	3	1	2	0

Data View



L



Observable vs. Construct





Simple Information

- What is your age?
- Where do you live?
- What is your gender?
- What job do you do?
- How much do you earn?
- What is your highest educational qualification?
- Do you have any disability?



Constructs – Internal Validity

- Constructs are ‘concepts defined scientifically so that they can be operationalized: that is, they are associated with (a) observable behaviours that (b) can be measured.
- Constructs are therefore usually classed as scale variables.
- Construct under-representation
- Activity 1
- <http://languagetesting.info/survey/Activity1.doc>





External Validity I

- Defining the Population
- Sampling methods: random sampling, stratified random sampling, convenience, snowball.
- Sample size: depends upon how many subgroups are represented in the sampling frame.
- Non-response analysis
- Reliability



Activity 4

[http://languagetesting.info/survey/
Activity4.doc](http://languagetesting.info/survey/Activity4.doc)



External Validity II

Wording

- The meaning of words
- Negation
- Double-barrelled questions
- Open ended questions
- Context and sequencing effects

[http://languagetesting.info/survey/
Activity5.doc](http://languagetesting.info/survey/Activity5.doc)





Download Files

<http://languagetesting.info/survey/>

Now Download the two files:

Questionnaire Annotated

and

survey.sav

Right Click and “save as” to your desktop

Questionnaire





Code Books

Always include a Code Book in an appendix.

Include:

- Variable names
- Scoring code
- Score ranges

See [Questionnaire Annotated](#)

➡ The annotations go into the Code Book



Descriptive Statistics I

Descriptive Statistics for a Variable

Mean (average)

Highest and Lowest Value

Standard Deviation

Standard Error of the Mean

Analyse > Descriptive Statistics > Descriptives



Descriptive Statistics II

Descriptive Statistics for a Variable by a Factor

Mean (average)

Highest and Lowest Value

Standard Deviation

Standard Error of the Mean

Analyze > Descriptive Statistics > Explore



Reliability

Reliability and Item Level Statistics

Cronbach's α (alpha)

A measure of the consistency of response to items designed to measure the same construct.

Analyze > Scale > Reliability Analysis



Difference Between Groups I

Is there a difference between the means of variables for a factor?

t-test for independent samples

Vs.

t-test for paired samples

Analyze > Compare Means > Independent Samples t-test



Difference Between Groups II

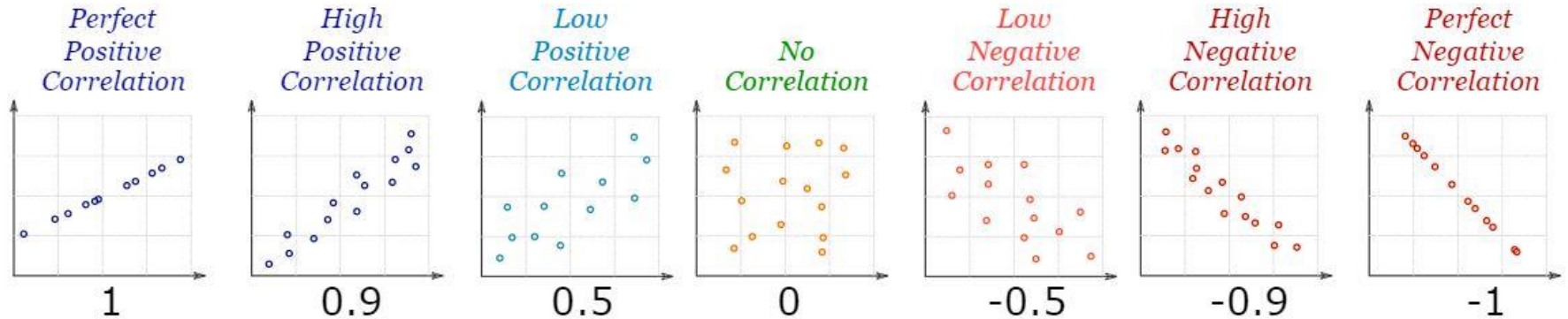
For MORE THAN ONE dependent variable, where does the difference lie? (Extension of the t-test to include post-hoc analysis)

ANOVA (Analysis of Variance)

Analyze > Compare Means > One-Way ANOVA



Association - Correlation



A correlation coefficient is always between +1 and -1

R = Correlation R^2 = Percentage Share Variance between Variables

So $R = 0$ is $R^2 = 0.0$ (or 0% shared variance)

$R = .5$ is $R^2 = .25$ (or 25% shared variance)

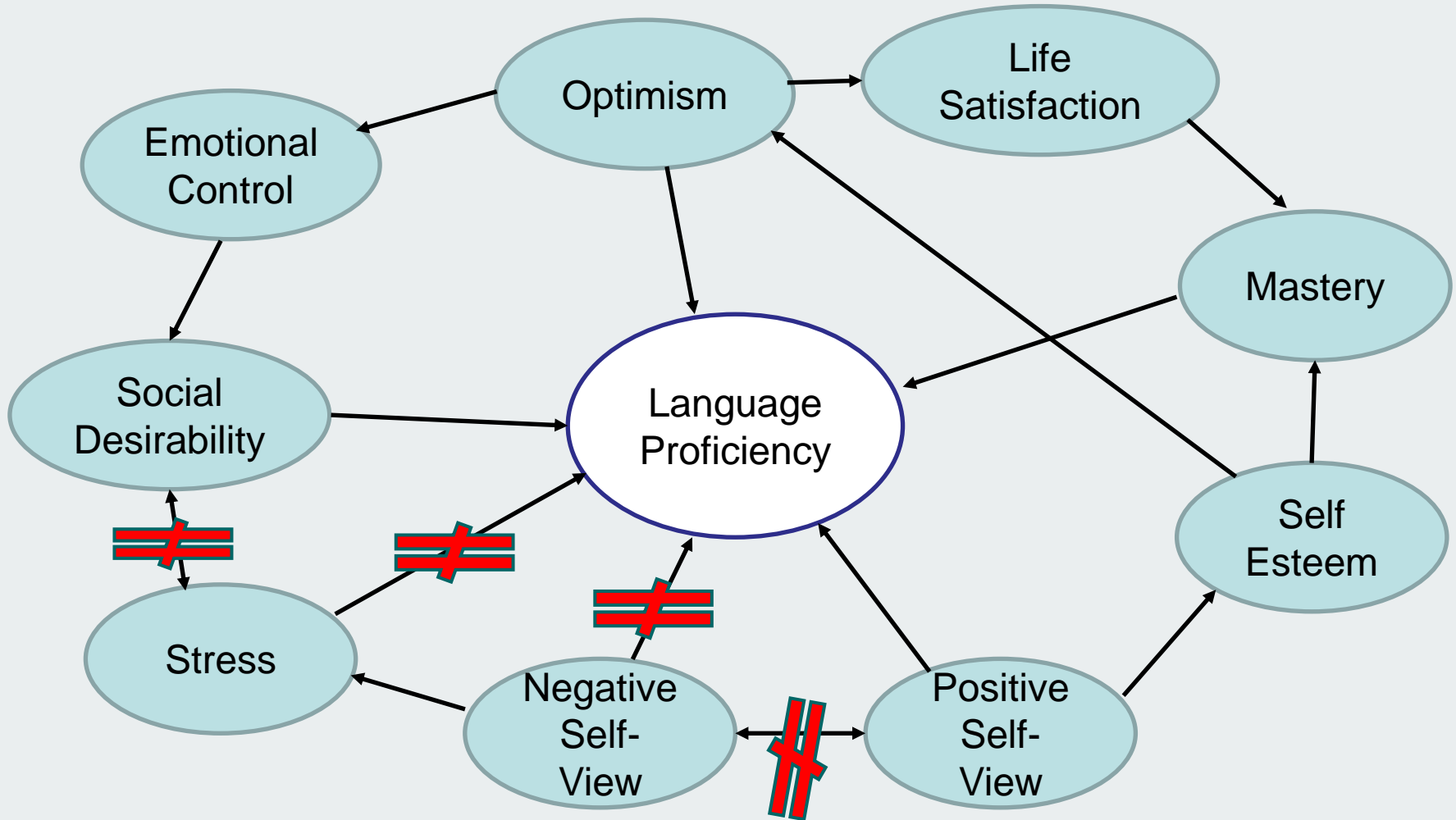
$R = .9$ is $R^2 = .81$ (or 81% shared variance)

$R = 1$ is $R^2 = 1.0$ (or 100% shared variance)



Activity 6: A Reasonable Operationalisation?

Open [Questionnaire Annotated](#)





Correlation I

Association for SCALE variables

Pearson Product Moment Correlation (PPM)

Analyze > Correlate > Bivariate



Activity 6: A Reasonable Operationalisation? Correlations

Predicted POSITIVE relationships with Language Proficiency

Optimism	.54	.29
Mastery	.47	.22
Positive Self-View	.38	.14
Social Desirability	.10	.01

Predicted NEGATIVE relationships with Language Proficiency

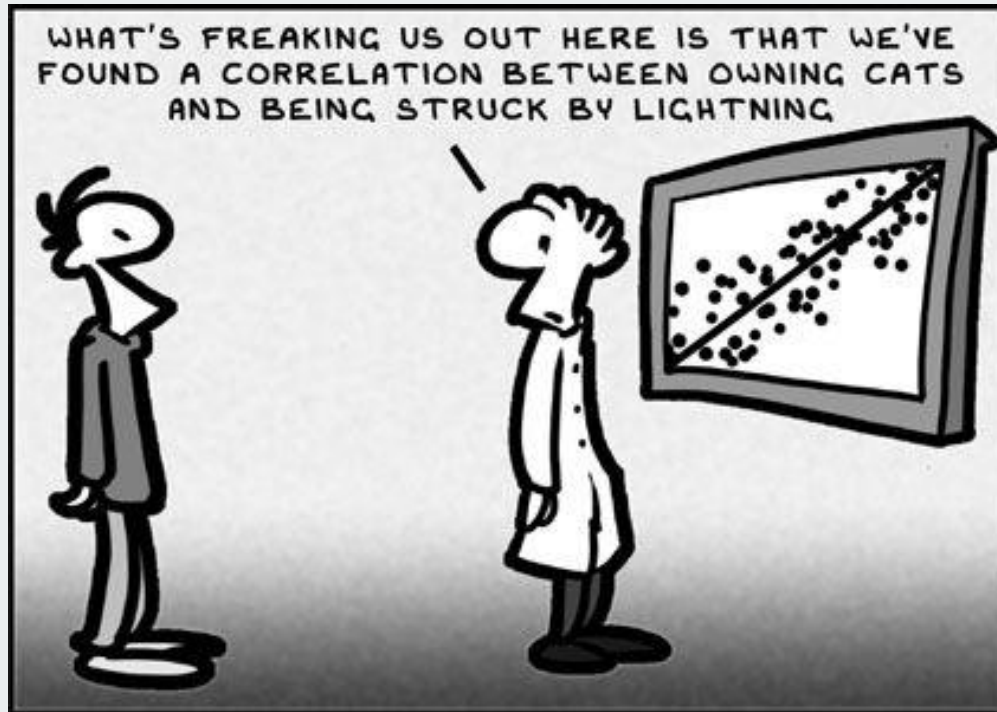
Stress	-.48	.23
Negative Self-View	-.36	.13

R

R²



Last But Not Least



<http://www.tylervigen.com/spurious-correlations>



Numbers

Numbers can help us understand the world.

But we are pattern-discerning creatures who tend to believe that all patterns are meaningful.

They are not.