Methodological challenges created by complexity in interdisciplinary studies

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Increased Complexity

National Culture

Hard to define:
- An abstraction (Kluckhohn, 1962)
- Nebulous (Burnes, 2009)
- Multi-dimensional (Moore, 1980)
- "the total life way of a people" that is highly influential in every aspect of life (Kluckhohn, 1949).

Frameworks:

Hofstede (1984)
- 4 dimensions.
- Subsequently added a 5th.
- Opposing qualities at each end .

Warned against using his data at anything less than national level.

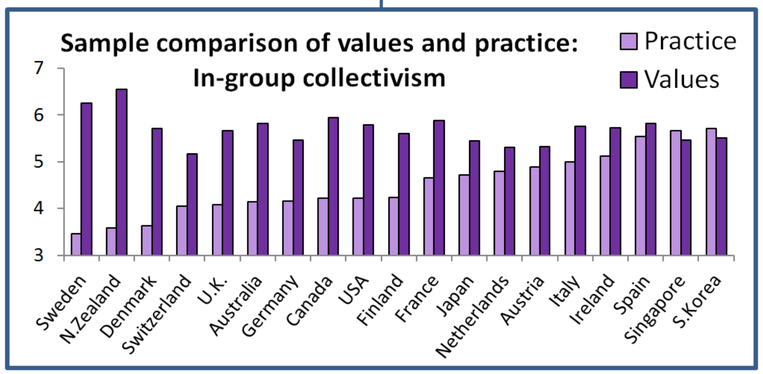
Kluckhohn & Strodbeck (1961)
- 5 "value orientations"
- Characteristics at both ends and at the mid point.

Hampden-Turner & Trompenaars
- 7 dimensions. (1988)
- Qualitative (McSweeney, 2002).
- Cultural profiles

Found the mix of characteristics influenced resultant behaviour.

The GLOBE study (2004)
- 9 dimensions,
- Measured values and practice.

The wording of the question influenced the response (below).



Sustainable Development

Hard to define:
- "A moving shadow" (Bell and Morse, 2008)
- an oxymoron (Daley, 1996)
- Definition deliberately vague
- Multifaceted

Hard to measure:
- Behaviour is influenced by the tool.
  - E.g. finance could be raised by taxation to donation.
  - The choice of instrument influenced willingness to pay.

Exploratory Interdisciplinary studies

The first interdisciplinary studies were published in 2003 (Christie *et al,* 2003). A meta analysis undertaken by Caprar and Neville (2012) summarised the findings (see table on the right).
- The studies were all positivist
- Established correlations between a limited range of cultural traits and specific behaviours.
- Inconsistencies in the results.
  - Values and sensitivity correlated with both poles of individualism.
  - Not all of the dimensions are found to correlate in every study.

Rogge, Dessein, and Verhoeve (2013) argue that research into subjects involving high levels of complexity should start with work of a more investigative nature:
- **Exploration**.
  - Establish parameters.
  - Concepts clustered appropriately.
- **Exemplification.**
  - Develop case studies.
- **Evaluation.**
  - Develop conceptual framework.
  - Draw conclusions

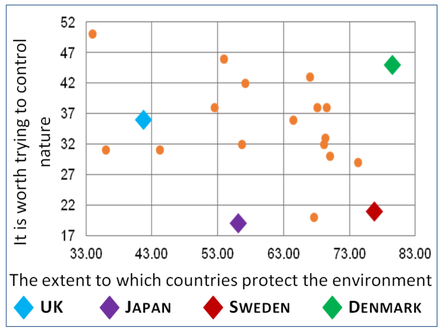
Complexity should be clarified not simplified

A summary using data from Caprar and Neville

✓: Hofstede's dimensions ✓: The GLOBE study		Values and sensitivity			Standards		Diffusion		Action	
		Ethical attitudes	CSR values	Recognition of ethics	Sustainable development	Environmental performance	Marketing ethical norms	Diffusion of good governance	Ethical policies	Financial support for sustainability
Individualism versus communitarianism	L		✓	✓			✓	✓		✓
	H	✓			✓					
Neutral versus affective				✓	✓	✓			✓	
Family corporate culture		✓	✓		✓	✓			✓	
Ascribed status				✓	✓	✓				✓
Universalism									✓	
Altruistic										✓
Long term view							✓			✓
Drive										✓

Sample Selection

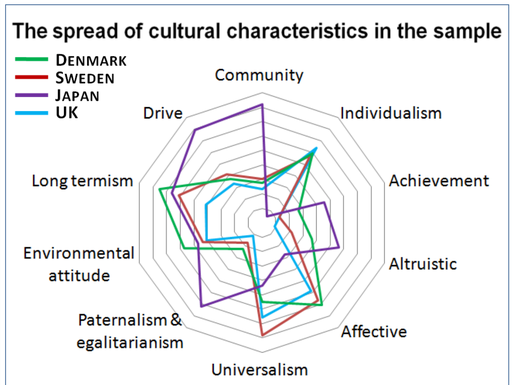
Maximum variation sampling based on responses to two environmental questions



Problems with samples

Found in studies within the meta analysis:
- Poor spread of data (Christie, 2003)
- Other variables not controlled (Christie, 2003)
- Inadequate sample size (Beekun, 2008)

The spread of cultural characteristics in the sample



values supporting sustainable developement are towards the outer edge of the graph

The variables in my Sample:
- All the countries are developed and educated.
- 3 share the same class of political system
- 99% of businesses in each nation are SMEs.
- 2 countries share a similar history and geography
- All have a large exposure to coastal waters
- 2 have a large area of uninhabitable land

Predicted Performance	Japan	Denmark	Sweden	UK
Diffusion				
Financial Investment				

Performance using data from OECD Green Growth Indicators
- Very little correlation could be established.
- Even less, when motivation behind actions was examined.

Activity	Japan	Denmark	Sweden	UK	OECD
Real GDP†‡	120.15	138.54	156.62	160.74	162.53
Energy management					
Energy intensity, toe per capita†	3.58	3.15	5.23	3.06	
Renewable electricity, % total††	11.79	47.68	58.34	11.42	20.16
Emissions management					
Greenhouse gas emissions†‡‡	**108.81**	**75.86**	**79.22**	**75.03**	**105.07**
GHG from transport†‡	**101.94**	**113.72**	**99.13**	**99.47**	
GHG emissions per capita, tonnes††	**10.53**	**9.5**	**6.05**	**9.17**	**12.47**
CO_2 production emissions†‡‡	111.73	82.32	85.19	80.66	110.65
CO_2 productivity for production†¶	3.32	4.36	7.39	4.66	
Materials management					
Domestic materials consumption*‡	59.88	98.47	127.54	69.72	
Domestic materials consumption pc*‡	**9.46**	**19.76**	**21.12**	**9.59**	**16.6**
Municipal waste*‡‡	86.85	136.95	121.91	110.57	113.41
Municipal waste per capita*	354	673	445	521	**533**
Landfill*‡‡	11.6	25.8	3.5	61.2	
Research and development					
Expenditure on R&D, US$ billion†	13.29	2.8	3.81	14.70	
Green patents*‡	7029.54	520.44	601.62	293.4	

All figures are rounded to 2dp ‡ Indexed base year 1990 ‡‡ Indexed base year 1995

*2010 †2011 ††2012 ¶US$ per kg CO_2 — Best performing … Worst performing