The Conditions of Continuity and the Drivers of Change

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Overview

- CAP project initiated in 2004
- Went to the field in 2007 in “19” Settings
- For 10 of these, one aim was to compare 2007 finding with the 1992 Carnegie survey
- CAP Model: Initial Conditions> Drivers> Response> Changes in Beliefs/Work> Impact on National Development
- Assumption that over the past two decades there was much change in the context the academy works in/with and this led to changes in the academy
- Goal today is to review three “Changes” in the Academy
- Will argue that there is much change, but also much Continuity

The Changing Context

- ***Perception of Higher Education as a Public Good Is Challenged.***
- ***Rise of market ideology*****----** questioning efficiency and effectiveness of public services.
- ***Most Economies have only experienced moderate Economic Growth***.
- ***Globalization: Most economies have become more open***.

Table 1. Indicators of GNP per Capita, and Export Trade as a Percent of GDP, 1992 and 2007

Country	GDP per capita 1992 (constant 2000 US$)	GDP per capita 2007 (constant 2000 US$)	Average % Annual Growth	Exports of Goods & Services as % of GDP 1992	Exports of Goods & Services as % of GDP 2007
Mexico	5,169	6,561	1.6%	15	28
Brazil	3,282	4,290	1.8%	11	13
Korea	7,841	15,158	4.5%	27	42
Hong Kong, China	22,263	34,041	2.9%	138	208
Australia	17,158	24,756	2.5%	16	20
UK	19,728	28,915	2.6%	23	27
Japan	34,801	40,707	1.1%	10	18
US	28,402	38,701	2.1%	10	12
Germany	20,566	25,249	1.4%	24	47
Netherlands	19,354	26,889	2.2%	55	75

Source: World Bank Economic Indicators.

More on the Changing Context

- ***Emerging Belief in the Value of Higher Education for Most Citizens.***
- ***Massification involving the Expansion of the number of students and the number of faculty***
- ***Massification leads to Institutional Differentiation, increase of contingent faculty***

Table 2. Enrollment in Total Tertiary Education, Gross Enrollment Ratios, and Teaching Staff, 1992-2007

Year	1992			2007				
	Total Tertiary	GER	Teaching Staff	Total Tertiary	GER	Teaching staff	% Increase in Total Tertiary	% Increase in Teaching Staff
Australia	559,365	0.4	28417	1,083,715	0.75	34413	94%	21%
Hong Kong, China	85,214	0.19	5,978	194,236	0.42	10,500	128%	76%
Japan	2,899,143	0.3	286,166	4,032,625	0.59	515,732	39%	80%
Republic of Korea	1,761,775	0.4	77,458	3,208,591	0.96	201,851	82%	161%
Brazil	1,591,176	0.1	134,403	5,272,877	n.a.	367,638	231%	174%
Mexico	1,302,590	0.13	134,424	2,528,664	0.28	274,618	94%	104%
Germany	2,033,702	0.35	279,806	2,278,897	n.a.	295,447	12%	6%
Netherlands	493,563	0.42	41,217	590,121	0.62	44,632	20%	8%
United Kingdom	1,385,072	0.33	89,500	2,362,815	0.58	129,930	71%	45%
United States of America	14,360,965	0.78	826,000	17,758,870	0.86	1,310,453	24%	59%

Source: UNESCO.

Notes: Mexico 1993 data, Mexico Teaching Staff for 1991, Germany 2007 Total Tertiary excludes ISCED Level 6 and hence GER 2007 (Levels 5&6) is not available, Germany Teaching Staff is for 1993. Unesco does not provide statistics for Hong Kong so we report estimates supplied by the Hong Kong research team

Public Funding is Down

Table 3 . Public Expenditure per Pupil as % of GDP per capita, Tertiary Level Declines				
	Year			
System	1995	2005	2007	1995-2007
Mexico	57.8	39	38	19.8
Brazil	109.8	35	29.6	80.2
Korea	5.6	8.7	9.0	-3.4
Hong Kong	66.2	59.7	38.5	27.7
Australia	28	21.5	20.2	7.8
UK	39.2	31.6	24.3	14.5
Japan	13.7	19.2	20.1	6.4
US	24	23.1	21.7	2.3
Germany	39.6	n.d.	n.d.	n.d.
Netherlands	45.8	42.4	40	5.8

S&T Competition is UP? (R&D as % GDP)

Country/Year	1996	2002	2009
Mexico	.42	.39	.37
Brazil	.76	1.04	1.08
Korea			3.36
Japan	2.92	3.12	3.33
Australia	1.68	1.54	2.21
UK	1.87	1.87	1.85
US	2.60	2.67	2.88
Germany	2.31	2.5	2.78
Netherlands	2.09	1.88	1.82

Table 4. Relative Country Shares of the World Total of Scientific Articles Shifts, 1990 to 2007

	1990		2000		2007		
Country	# Articles	World Share %	# Articles	World Share %	# Articles	World Share %	% Change in World Share 1990-2007
World Total	508,795	100.0	632,781	100.0	758,142	100.0	
Mexico	1038	.2	2950	.5	4,223	.6	173.0
Brazil	2374	.5	6195	1.0	11,885	1.6	236.0
Korea	1170	.2	9386	1.5	18,467	2.4	959.3
Hong Kong, China	995	.2	4914	.8	7127	1.1	510.0
Australia	10,664	2.1	14,700	2.3	17,831	2.4	12.2
UK	39,069	7.7	49,485	7.8	47,121	6.2	-19.1
Japan	38,570	7.6	55,413	8.8	52,896	7.0	-8.0
US	191,559	37.6	196,221	31.0	209,695	27.7	-26.5
Germany	32,295	6.3	43,440	6.9	44.408	5.9	-7.7
Netherlands	10,176	2.0	12,330	1.9	14,210	1.9	-6.3

Source: NSB (2010), p. 5-14. The articles included in this table are those listed in the Science Citation Index and the Social Science Citation Index. Where the authors of an article are from two or more countries, fractions are used to indicate country attribution.

Continuities in the Context

- While much change, also much continuity: little change in Rankings in GNP per capita, Rankings in global trade, Rankings in tertiary GER, Rankings in population, Rankings in size of the professoriate, ranking in # of scientific articles.
- Other Constants: Relative System Size, Language of Instruction, Regional Affiliations
- So in thinking about context and its impact, 2 simple formulas:
- Yesterday = (Initial) Conditions + Error
- Today = Yesterday (as a function of yesterday's conditions) + Change Generated by Drivers + "Error"
- Will Illustrate with 3 examples

Teaching-Research Balance

Table 5. Academic Preferences: Do Your Interests Lie Primarily in Teaching or in Research?									
2007/Country	DE	UK	US	JP	KR	HK	AU	BRZ	MX
Primarily Teaching	10	10	24	6	3	9	7	8	20
In both but leaning towards Teaching	18	27	34	23	29	28	23	42	37
In both but leaning towards Teaching	40	37	34	57	61	52	40	42	33
Primarily Research	32	26	9	14	7	11	29	7	5
1992/Country									
Primarily Teaching	8	12	27	4	5	11	13	20	14
In both but leaning towards Teaching	27	32	36	24	40	35	35	42	45
In both but leaning towards Research	47	40	30	55	50	46	43	36	37
Primarily Research	19	15	7	17	6	8	9	3	4

Table 6. Average Hours Per Week Devoted to Teaching by Country 1992 and 2007									
Country	DE	UK	US	JP	KR	HK	AUS	BRZ	MX
2007 HRS Teaching	12.3	15	21.6	21.8	21.4	19.9	17.6	18.9	21.5
1992 HRS Teaching	16.4	21.3	18.7	19.7	23.1	19	21.8	21.9	16.9

Figure 2. Main Contextual Factors and Drivers Influencing the Teaching Research Balance of National Systems

	Conditions				Drivers				
System	***Market-based Coordination***	***Tuition-based Funding***	***'Private Sector***	***Economic Growth***	***Higher Ed a Private Good***	***Massification: System Expansion***	***Massification; Differentiation***	***Population Decline***	***R&D Fund Up***
Mexico	Moderate	Moderate	Yes	Rapid	Moderate	High	Moderate	Low but Increasing	Yes
Brazil	Moderate	Moderate	Yes	Rapid	Moderate	High	High	Lo but Increasing	Yes
Korea	Rising	High	Yes	Very Rapid	Moderate	High	High	Moderate	Yes+
Hong Kong	High	High	No	Rapid	Moderate	High	Limited	Moderate	Yes+
Australia	Very High	Very High	Yes	Moderate	High	Moderate	Some	Moderate	No
UK	Very High	Moderate	No	Moderate	High	Moderate	Some	High	Yes
Japan	Moderate	Moderate	Yes	Slow	Moderate	Moderate	Some	High	No
US	Very High	Very High	Yes	Moderate	High	Moderate	High	Moderate	No
Germany	Moderate	Moderate	No	Moderate	Moderate	Moderate & Increasing	High	Moderate	No

The Calculus of Impact

- High or Rapid = 1
- Moderate = .5
- Low = 0
- Then sum all of the scores for the conditional factors
- Repeat for the drivers

Table 7. Relative Aggregate Strength of Contextual Factors for Teaching Load

Country	**Conditions**	Rank of Estimate	Actual Rank	**Drivers**	Rank of Estimate	Actual Rank
Mexico	2.5	6	8	2	6	1
Brazil	3	2	2	2.5	4	6
Korea	3.5	1	1	2	8	5
Hong Kong	2	8	6	2.5	4	4
Australia	3	2	3	3.5	1	8
UK	3	2	4	1.5	9	9
Japan	2.5	6	5	2	6	3
US	2.5+	5	7	3.5	1	2
Germany	1.5	9	9	3	3	7

Internationalization

Figure 3. Main Contextual Factors and Drivers Influencing the Internationalization of National Systems

	Conditions				**Drivers**				
System	***Economic Level***	***Participa-tion in World Trade***	***System Size***	***'International' Language***	***Economic Growth***	***Globali-zation***	***Massification: System Expansion***	***Massification; Differentiation***	***Knowledge Production***
Mexico	Moderate	Moderate	Moderate	No	Rapid	Moderate	High	Moderate	Low but Increasing
Brazil	Moderate	Moderate	Moderate	No	Rapid	Moderate	High	High	Lo but Increasing
Korea	Rising	High	Moderate	No	Very Rapid	High	High	High	Very High
Hong Kong	High	Very High	Small	Yes	Rapid	Very High	High	Limited	Very High
Australia	High	High	Moderate	Yes	Moderate	Moderate	Moderate	Some	Moderate
UK	High	Moderate	Moderate	Yes	Moderate	High	Moderate	Some	High
Japan	Very High	Moderate	Large	No	Slow	Moderate	Moderate	Some	High
US	Very High	Moderate	Large	Yes	Moderate	Moderate	Moderate	High	Moderate
Germany	High	High	Moderate	No	Moderate	Moderate	Moderate & Increasing	High	Moderate
Netherlands	High	Very High	Small	Yes	Moderate	High	High	High	Moderate

Table 9. Percent of Academics who Indicate They Collaborate with Foreign Partners in Research

	% that Collaborate	
	1992	2007
Mexico	39.9	34.6
Brazil	24.2	28.4
Korea	25.1	29.5
Hong Kong, China	65.0	60.2
Australia	57.0	59.3
UK	43.1	61.4
Japan	28.5	23.8
US	39.1	33.3
Germany	55.0	50.0
Netherlands	74.3	62.9

Sources: For 2007 question D1, for 1992 question 65a

Table 8 Relative Aggregate Strength of Contextual Factors re Intl. Collaboration

Country	Conditions	Rank of Estimate	Actual Rank	Drivers	Rank of Estimate	Actual Rank
Mexico	1.5	7	6	2	3	8
Brazil	1.5	7	10	1.75	6	3
Korea	2.5	3	9	3.5	2	2
Hong Kong	3+	2	2	4.5	1	1
Australia	2.5	3	3	1	7	7
UK	2	6	5	2	3	3
Japan	1.5	7	8	.5	8	8
US	1.5	7	7	.5	8	8
Germany	2.5	3	4	.5	8	8
Netherlands	4+	1	1	2	3	3

Loyalty

Table 11. Percent of Academics who Indicate That Their Affiliation with their Institution is Important

	% who say Institutional Affiliation is Important	
	1992	**2007**
Mexico	94	93
Brazil	96	79
Korea	97	74
Hong Kong, China	78	60
Australia	74	50
UK	84	38
Japan	80	63
US	90	61
Germany	34	51
Netherlands	Nd	50

Sources: For 2007 question B4, for 1992 question 17

Figure 3 Main Initial Conditions and Drivers Influencing the Decline in Institutional Loyalty									
	Initial Conditions			Drivers					
System	Shared Governance Accepted	Respect for Academic Freedom	State sees HE as Public Good	Rise of Market Ideology	Massifica-tion	Privatiza-tion	Decline in Public Support of HE	Manager's Role Expands	Performance Evaluation Streng-thened
Mexico	Somewhat	Yes	Yes	Minimal	Early Stages	Increasing	No	Contracts	Moderate
Brazil	Somewhat	Yes	Yes	Minimal	Early Stages	Increasing	Sharp	Contracts	Moderate
Korea	Somewhat	Moderate	Yes	Moderate	Hi	Hi	No	Stable	Considerable
Hong Kong	Yes	Yes	Yes	Moderate	Moderate	Low	Modest	Modest	Considerable
Australia	Yes	Yes	Yes	Strong	Hi	Modest	Modest	Expands	Considerable
UK	Yes	Yes	Yes	Strong	Hi	Low	Sharp	Expands	Considerable
Japan	Yes	Yes	Yes	Moderate	Hi	Hi	No	Modest	Moderate
US	Yes	Yes	Yes	Strong	Hi	Moderate	Modest	Modest	Considerable
Germany	Yes	Yes	Yes	Minimal	Moderate	Negligible	Stable	Expands	Moderate
Netherlands	Yes	Yes	Yes	Minimal	Moderate	Negligible	Stable	Expands	Moderate

Table 12. Relative Strength of Contextual Factors for Loyalty

Country	Conditions	Drivers
Mexico	2.5	.5
Brazil	2.5	.75
Korea	2	3
Hong Kong	3	2.5
Australia	3	4
UK	3	5
Japan	3	2.5
US	3	3.5
Germany	3	1.5
Netherlands	3	1.5

Conclusions

- Context is composed of conditions and drivers
- Much **variation** in the conditions and the drivers of the 10 systems we have reviewed
- Today = Yesterday + Change
- Yesterday is determined by Conditions; our predictions for the three examples were very successful
- Change is determined by the Drivers; our predictions on T/R Balance and Loyalty were successful

Most important contextual factors: Conditions

- Higher education as a public good---a firmly established value through the eighties
- System scale, especially as it influences the availability of domestic colleagueship
- The Language of instruction, with the contrast between systems that use English as contrasted to other languages

Drivers

- Higher education as a private good---a belief that became increasingly pervasive from the mid-eighties, and helps to account for many of the 1992 to 2007 changes discussed in this analysis
- The increasing reliance on market signals for the coordination of higher education
- The pressures of massification
- The demand for relevance.
- The new competition to be World Class, especially in research

4 Patterns of Change

	Conditions Similar	Conditions Vary
Drivers Similar	Job Satisfaction is Stable	Differing Levels of Internationalization Persist
Drivers Vary	Institutional Loyalty Declines	Teaching-Research Balance Shifts Research Productivity Shifts