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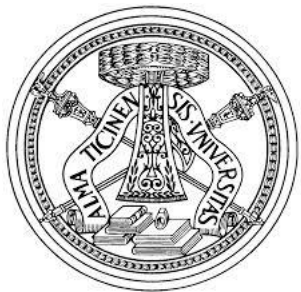
Crossing boundaries in scientific knowledge creation and transmission



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Governance of Knowledge in Italian Higher Education Policy: Inconsistencies about Interdisciplinarity



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Interdisciplinary: Motivation and Context

- Disciplinary boundary crossing is a key issue when looking at university transformations (Reale and Primeri 2015)
- Proliferation of the programmatic discourse about interdisciplinarity in many countries, BUT:
 - ‘*Paradox of interdisciplinarity*’ in HE research governance
 - Persistence or even reinforcement of modes of governance and associated mechanisms that almost exclusively rely on rigid discipline-based classification systems (Weingart 2000)
 - Translating policy rhetoric into practice is not simple (Howlett 2014)

Research objective

- Filling in the literature about:
 - Boundary crossing
 - Policy instruments mix (portfolio)
- Case-study: Italian HE system
 - Country in which the goal of increasing interdisciplinarity in HE research has figured prominent in the policy discourse
 - Funding announcement (i.e. Bando PRIN 957/2012)
 - Premier decree of 24th January 2013 and of 7th October 2011
 - Guidelines for teaching and activation of decree courses (ministerial decree 270/2004, and ministerial decree of 26 July 2007)
 - Hyper-reformism in the recent years
- Assessing how the Italian policy instruments portfolio respond to a coherent policy design to spur interdisciplinary research

Literature review: Policy design

- Interdisciplinarity goal affected by several policy instruments
 - Combination can be virtuous or contradictory
 - Concerns about whether the policy instruments mix responds to a coherent policy design are rather neglected even in the policy design literature (Howlett 2014)
- Del Rio (2014) classification
 - Policy instrument mixes
 - **Type I policy mix:** *one target* is influenced by more instruments
 - Type II policy mix: *at least two targets* tackled by at least two instruments
 - Instruments conflict
 - **Horizontal:** instruments designed at the *same administrative level*
 - Steering is made mainly by state regulations (Donina et al. 2015)
 - Vertical: instruments introduced by *different administrative level*

Knowledge classification: Disciplines

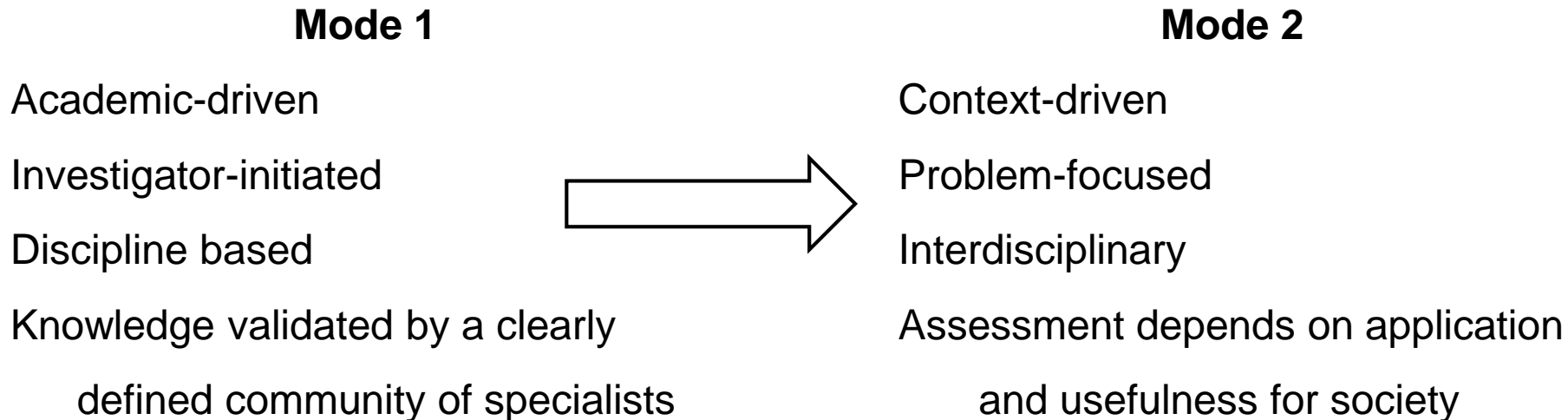
- Traditionally knowledge organized into disciplines (Clark and Wallace 2015)
 - Symbolic boundaries (Lamont and Molnar 2002) to reduce the complexity of a particular domain of knowledge
 - Commonly accepted classification system (Abbott 2001)
 - Enable to categorize objects, people, and practices (Sokal 1974)
- Discipline classification drawbacks
 - Being taken for granted, shaping the formation of new knowledge
 - Limiting influence on knowledge-practices and scope
 - Create cognitive boundaries: unorthodox lines of enquiry and findings appear deviant, counterintuitive, and ultimately errant
 - Specialization of scientific knowledge into ever more narrow domains
 - Some research fields fail to fit within existing disciplinary categorizations

The Interdisciplinary “mantra”

- Boundaries between disciplines can be blurred
 - Search for funds was the first driver to favour permeability of knowledge (Gibbons et al. 1994)
 - Link science with societal needs
- Main rationales to interdisciplinarity
 - Mean to integrate knowledge and methods in the interest of problem solving (Clark and Wallace 2015)
 - Researchers today face questions which regard complex social phenomena, characterised by knowledge complexity (‘wicked problems’)
 - *Heterogeneous* research teams
 - Remedy to decades of differentiation and fragmentation of knowledge (Lasswell 1970)
 - Integration across knowledge fields

Mode 2 of Knowledge Production

- Science policy literature
 - From traditional research ('Mode 1') to 'Mode 2' of knowledge production (Gibbons et al. 1994; Nowotny et al. 2001)



- Melding disciplines hardly happen spontaneously and explicit methods are often lacking (Clark and Wallace 2015)

Barriers and disincentives to interdisciplinary (1/3)

- Organizational barriers (political organization of universities)
 - Nexus between disciplines and departments has been the basic organizational framework in most universities
 - Department norms are defined by the disciplines rather than institution
 - Developed for ability to promote disciplinary knowledge within a community of scholars
 - Promote knowledge separation rather than integration
 - Led to formation of departmental 'silos'
 - Researchers do not communicate across disciplinary and organizational boundaries (Sà 2008)
- Limited adaptability of organizational structures
 - Resiliency of disciplines and departmental counterparts across time and space (paradox of success)

Barriers and disincentives to interdisciplinary (2/3)

- Research products and proposals assessment
 - Governance mechanisms categorize knowledge and research in disciplinary terms
 - Assessment are typically from a discipline-specific viewpoint
 - '*Problem of fit*': Interdisciplinary research may not fit into the disciplinary matrix
 - Both peer-review and bibliometric-driven assessment foster disciplinary mainstream research
 - Experts from single discipline may not have a proper understanding of methodologies and conceptions from other cognitive contexts
 - Assessment mechanisms act as a deterrent to interdisciplinary

Barriers and disincentives to interdisciplinary (3/3)

- Academic discipline-based labour market
 - In most HEIs and systems, faculty hiring, and tenure decisions are controlled by departments and professional associations
 - Disciplines regulate faculty behaviour
 - Scholars rewarded only for the efforts within their home discipline
 - Deviating may threaten young academic members career prospects
- Education
 - *Disciplinary courses* meet the conventional standards of empowering people, making strategic-oriented, and able to encourage change
 - *Interdisciplinary* method develop integrated skills regarded essential to effectiveness in real-world problem solving

Research design

- Content analysis (Bardin 2009) of legal documents issued by the Italian government, MIUR, and ANVUR
- Focus on four policy instruments recently reformed:
 - Internal organization of Italian state universities (Law 240/2010)
 - Ongoing research evaluation exercises (VQR 2011-2014)
 - Academic career structure (Law 240/2010; ministerial decree 159/2012)
 - PhD programs (Law 240/2010)
- We assess how interdisciplinary target is affected by:
 - Individual policy instrument
 - Instruments mix 'portfolio' responds to a coherent policy design

Internal organization

- Law 240/2010 reformed internal organization of Italian state universities
 - Faculties (holding right to recruit permanent staff) and old small departments were replaced by new big department (Donina et al. 2015)
 - Composed by law of a minimum of 35 (40) academic staff members **coming from homogenous disciplinary fields (SSD)** (Donina et al. 2015)
 - Responsible for both teaching and research
 - Responsible for the proposal for calling new academic staff members, specifying the disciplinary area (SC and, eventually one more SSD) of the new hiring
- Proposal for calling academic staff member is still based on disciplinary fields
- Internal disciplinary homogeneity prevent possible attempts to create interdisciplinary departments

Research Assessment Exercise: VQR 2011-2014 (1/2)

- Italian assessment exercise
 - Based on 16 macro-scientific research areas (*Aree di Valutazione*)
 - Panel of Evaluation Experts (GEV–*Gruppo di Esperti Valutatori*) is divided by macro-scientific research field
 - Every research product has to be assigned just to one specific SC and SSD
 - Synthetic indicators published also per every macro-scientific research area and disciplinary fields (SC and SSD)
 - Every macro-scientific research area GEV defines criteria of quality assessment for their own area independently, in accordance with ANVUR
 - Peer review vs bibliometric indicator
 - Type of research outputs (only books, and monographs vs scientific papers)
 - Research output language
 - Every GEV, in accordance with ANVUR, can appoint more discipline-homogeneous subgroups to perform evaluation

Research Assessment Exercise: VQR 2011-2014 (2/2)

- Regarding interdisciplinarity
 - ANVUR (2015) recognizes that may be interdisciplinary research outcomes
 - They have to be signalled for being evaluated through *peer review* because of “the lesser presence of interdisciplinary areas in bibliometric database” (ANVUR 2015, 11)
 - Do not considering that even by peer reviewing assessment, methodology and evaluation criteria differ among disciplines and that interdisciplinary research outputs could be reviewed in an inadequate manner when evaluated just by experts from one single discipline
 - No interdisciplinary panel is provided for assessment of interdisciplinary research products
- Every epistemic community establish independently their own priorities and evaluate results according to own criteria
 - May hinder collaborations

Academic career

- Historically, Italian promotion system was discipline-based, rewarding demonstration of independence and individual accomplishments
 - Barrier to team-based collaborative scientific research
- Law 240/2010 reformed Italian tenure track recruitment
 - Disciplinary fields for academic career reduced from 370 SSD to 184 SC
 - New recruitment procedure provides for
 - Initial selection at national level by disciplinary field (ASN)
 - On-purpose evaluation committee of academics working within a single disciplinary field (SC) evaluates research outcomes of the candidates
 - Finally university can choose among those considered eligible
 - Some disciplines (i.e. Political and Social Sciences) devalue multi-authors publications
 - Scholars could avoid to be involved in interdisciplinary collaborations
 - Different lists of scientific journals per various discipline
 - May deprive value of publications for authors coming different fields
- Academic disciplines are still the authority over HR decisions

Doctoral education

- Italian doctoral education reform
 - PhD programmes from 1.531 courses in 2012/13 to just 897 in 2014/15
 - Mono-disciplinary PhD courses from 543 (35,5%) to 263 (29,3%)
 - Activities can be in common among more PhD programmes to give interdisciplinary training (Ministerial decree 45/2013)
- BUT Accreditation rules declare that Ph.D. courses refer to
 - “Broad, consistent, and clearly defined disciplinary field”
 - “Suggest to avoid Ph.D. courses which are the aggregation of various topics regarding research objects and methodologies”
 - Recommends “attention to the disciplinary and methodological harmony”
 - Special care is devoted to courses which present strong multi-disciplinarity
 - Have to provide evidence in research outcomes of Ph.D. committee members
 - **No reference is to interdisciplinarity** in the whole document
- Doctoral education accreditation and assessment are limited and strongly based on disciplines

Policy instruments portfolio assessment

- Inconsistencies of Policy instruments mix
 - Mismatch between the programmatic discourse about interdisciplinary and governance of Italian HE research based on disciplinary fields
- Mainly the reform of doctoral programmes looks inconsistent with other developments within the HE research governance
 - Ph.D. programmes have been merged making them more integrated and interdisciplinary, but:
 - Subsequent accreditation and evaluation is inconsistent with this development
 - Evaluation of the Ph.D. graduates for a potential career within the Italian academia continues to rely on just singular disciplinary skills
 - They are sorted into departments composed of academic staff coming from homogenous disciplinary fields

Possible reason for policy inconsistency

- Italian legislative process takes place mostly by legislative decrees
 - Policy instruments portfolio emerges through a gradual historical process of incremental changes and/or successive reformulation
 - *Policy layering*
 - Policy designers face with the already existing policy mix and take into account the policy legacies
 - Patch or restructure existing policy elements rather than propose alternatives *de novo*
 - » Goals and instruments are simply added to existing ones
- Incoherent and incongruent elements
 - Questionable whether incremental layering or policy ‘patching’ (Howlett and Ryaner 2013) can achieve complex and ambitious policy goals in an efficient and effective way

Conclusions

- Incoherence among declared policy ends and policy means
 - Disciplines are still today the backbone of Italian HE research governance
 - Disciplines employed to facilitate centralized forms of assessment and recruitment
 - Little efforts to reduce the rigidity of an historically discipline-based classification system
 - ‘Aggregation’ of discipline fields (from SSD to SC)
- Interdisciplinarity require an overall redesign of Italian HE research governance
 - Relax some governance mechanisms and pressures for disciplinary classification
 - Founding elements in the current Italian research governance
 - Unluckily to be achieved through a policy layering

Interdisciplinary strategy: Proposal

- Proposal to favour interdisciplinarity (National Academies 2005)
 - More integration of knowledge
 - Establishment of institutions 'without walls'
 - Greater flexibility and mobility for students and academics
- Devolving decisional power to organizational level
 - Universities could pursue effective interdisciplinary strategies
 - Universities would become agencies endowed with real autonomy, who could find their own strategy and criteria to recruit and foster collaboration among investigators
 - Foster institutional differentiation within the Italian HE system

Proposal: Recruitment strategy

- Shifting recruitment strategies at least for a small fraction of academic hiring
 - Reduce the power of professional disciplinary associations
 - Fostering Italian universities acting as more complete organizations
- I.e. Sà (2008) shows strategy adopted by U.S. research universities which made deliberative efforts to spur collaborative research
 - *Cluster hiring' strategy*
 - Reverse recruitment process: inter-departmental search committees recruit individuals into the cluster, then identify the adequate department to be the academic home
 - *Co-funded dual appointment*
 - Co-funding scheme wherein a department and an interdisciplinary research centre share the costs

Policy instruments portfolio

- BUT this interdisciplinary strategy should be pursued within a coherent policy mix portfolio of the Italian policy-makers
 - Research assessment both at institutional and individual levels should be redesigned coherently for the new hired
 - Universities should have the opportunity to create departments centred around problem-solving and composed of academic staff belonging to *heterogeneous* SSD

Thanks for your attention

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