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## Synergies in Scholarship at the Research Teaching Nexus at TU Dublin: Building Research Synergies into Teaching Activity Workshop

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Féidearthachtaí as Cuimse  
Infinite Possibilities

# Synergies in scholarship at the research teaching nexus at TU Dublin: building research synergies into teaching activity workshop

2021 Polytechnic Summit, Dublin

Dr Deirdre McQuillan

3 June 2021



# Workshop plan ...

1. Overview of survey results

2. What does teaching informed / led research output look like in TU Dublin?

3. Sharing stories  
– research supportive teaching philosophies

4. Takeaways

Objective of workshop is to provide and recognise possibilities for research synergies for individuals attending and to help participants develop more research supportive personal teaching philosophies

# Literature review – the problem ...

- Scholars recognise the necessity to create synergy between research and teaching in university structure and culture (Griffioen and De Jong 2015; Jenkins and Healey 2005)
- McLean and Barker (2004) refer to the 'enduring myth' of a symbiotic relationship between teaching and research.
  - Teaching and research are often organized and managed as separate activities, underscoring their duality in the modern university (Brennan et al 2019).
- But awards and career progression are often research based (Groningen et al., 2017).

Does a research teaching nexus exist as a 'whipping tool' for institutional level and policy level strategizing? Or is there evidence of synergies in research output drawn from teaching?

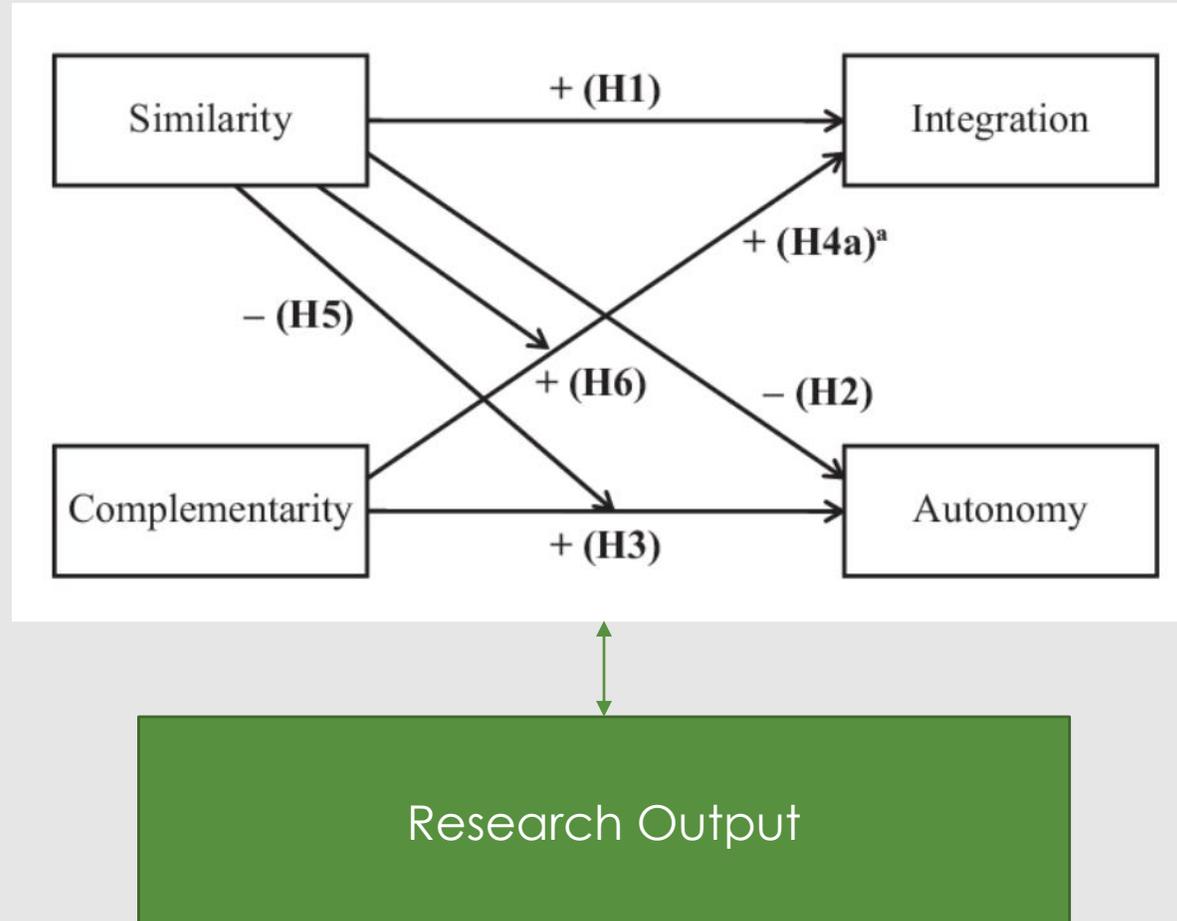
- Problem in education literature is that studies on synergies create even more tension because they focus on process rather than productivity (Sedow, 2000).
- The business strategy literature offers a frame for examining the dynamics of synergies
  - Emphasis is on similarity (e.g., Chatterjee, 1986; Homburg & Bucerius, 2005; Seth, 1990; Singh & Montgomery, 1987) and complementarity (Kim & Finkelstein, 2009; Milgrom & Roberts, 1995; Penrose, 1959); and
  - Dynamic of complementarity and similarity with perceived interrelatedness and autonomy (Zaheer et al 2011)

My motivation .....

**Too much stress,  
too little time**



# Hypotheses – understanding the dynamics on research outputs



Hypotheses on the dynamics of synergies

Other hypotheses examining influences on research output (H7 and H8)

# Research design - survey

- Quantitative case study of TU Dublin
- Survey
- Unit of analysis is the academics in TU Dublin
- 16 questions in survey (62 variables) including one open ended field at the end
  - 4 nominal
  - 10 ordinal
  - 2 scaled
- Dependent variables: research outputs
- Independent variables:
  - similarities in research teaching linkages,
  - complementarity in research teaching linkages,
  - perception of autonomy or integratedness of teaching and research

# Pathways for research outputs (Q9 and Q10)

(Dependent variables)

Publication output	Other dissemination pathway
Publication in international peer review journal	Presentation at conference, exhibition of work, performance or recital
Publication in Irish Peer review journal	Media, artefact or composition
Publication in non-peer review journal, case study or professional publication	Research related service such as Editor on peer review journal (ongoing)
Scholarly book or book chapter	Receipt of research project funding (third party)
Commissioned policy report or government working paper	Patent/trademark/invention disclosure
Datasets containing permanent URLs for published datasets	Co-creation of innovative solutions, knowledge exchange, enterprise start up, etc
Other publication	Submission of own thesis
	Other

Similarities (Q13  
and Q14)

Complementarities  
(Q15 and Q16)

(Independent  
variables)

Extent of similarities across ...	Extent of complementarity across ...
Module themes and content	See research outputs
Module structuring and design	
Module teaching and delivery	
Student examination and assessment	
Module reflection and feedback	
Supervision	
Other teaching activities	

# Other questions

- Broad perception about research and teaching activities as broadly integrated or autonomous (Q17) (independent variable)
- Understanding and level of importance of research teaching linkages (nexus) Q11 an Q12)
- Level of active research engagement (Q7)
- Research activities (Q8)
- Categorisation questions (Q2-6)
  - Field of teaching activity
  - Academic level
  - Gender
  - Highest degree awarded
  - Length of time working in academic institution

# Analytical techniques

- SPSS
- Broad descriptive statistical analysis
- Tests for distributions and variability (Shapiro Wilks, Chronbach's Apha)
- Non parametric spearman correlation
- Independent samples t-tests on research outputs
- Hayes process model bootstrap (Model 1 – moderation and Model 4- mediation)

# Findings – profile of respondents

		%	n
<b>Teaching field</b>	STEM	37%	80
	Non-STEM	63%	
<b>Gender</b>	Male	49%	80
	Female	47%	
	Other	4%	
<b>Academic title</b>	Assistant Lecturer	25%	80
	Lecturer	36%	
	Senior Lecturer	31%	
	Professor	8%	
<b>Highest degree award</b>	Masters degree	18%	80
	Registered on PhD	6%	
	PhD	76%	
<b>Years of academic experience</b>	Less than 5 years	13%	80
	5-10 years	24%	
	11-15 years	13%	
	More than 15 years	51%	
<b>Perception about teaching research link</b>	Broadly integrated	47%	80
	Broadly autonomous	53%	

Highly correlated research outputs

Type of research output	Strong correlation (at 0.01 level (2-tailed))	
<b>Social output</b>	Individual output Service output Research funding output International and Irish peer review publications	Non academic publications Scholarly books Other
<b>Individual output</b>	Social output Non academic publication	
<b>Service output</b>	Social output Research funding output	International peer review publication Scholarly book
<b>Research funding output</b>	Social output Service output	International peer review publication Public dataset Other
<b>IP disclosure</b>	No close correlations	
<b>Innovation co-creation</b>	No close correlations	
<b>Own thesis submission</b>	No close correlations	
<b>International peer review publication</b>	Social output Service output Research funding output	Irish peer review publication Other
<b>Irish peer review publication</b>	Social output	International peer review publication
<b>Non academic publication</b>	Social output Individual output	Scholarly book Other
<b>Scholarly book</b>	Social output Service output	Non academic publication Policy report Other
<b>Policy report</b>	Scholarly book	
<b>Public dataset</b>	Research funding output	

# Significant results

- There is a significant correlation between service output and complementarity of teaching / research where research and teaching activities are perceived as integrated.
- There is a significant correlation between policy reports output and complementarity of teaching / research where research and teaching activities are perceived as integrated.
- There is a significant correlation between individual research outputs and complementarity of teaching / research where research and teaching activities are perceived as autonomous.
- There is a significant correlation between own thesis submission and complementarity of teaching / research where research and teaching activities are perceived as autonomous.
- There is a significant correlation between research funding output and similarities of teaching / research where research and teaching activities are perceived as integrated.
- There are no significant correlations between research outputs and similarities of teaching / research where research and teaching activities are perceived as autonomous.
- Complementarity has a direct effect on own thesis submission (.3692 effect - check Hayes Model 4).
- Complementarity has a direct effect on individual research output (.5722 effect – check Hayes Model 4).

# Perceptions of autonomous / integratedness on research outputs (t-test)

- Broadly more research outputs are reported where research and teaching are perceived as integrated activities.
- Publication of scholarly books has the largest impact in this regard.
- Other such differences relate to individual outputs (such as media, artefacts or compositions), international peer review publications, service outputs, IP disclosure, non-academic publications, policy reports, thesis submission and other publications.
- Very little difference exists for social output (conferences, exhibitions, etjc..), Irish peer review publications, research funding.
- Only public data sets have a slightly higher score where research activities is perceived as autonomous.

It is worth noting however that sd. is quite high for many scores on the t-test suggestion varied experiences among participants in the attainment of research outputs.

# Qualitative feedback – some quotes

“It would be worth evaluating different approaches to the research teaching nexus”

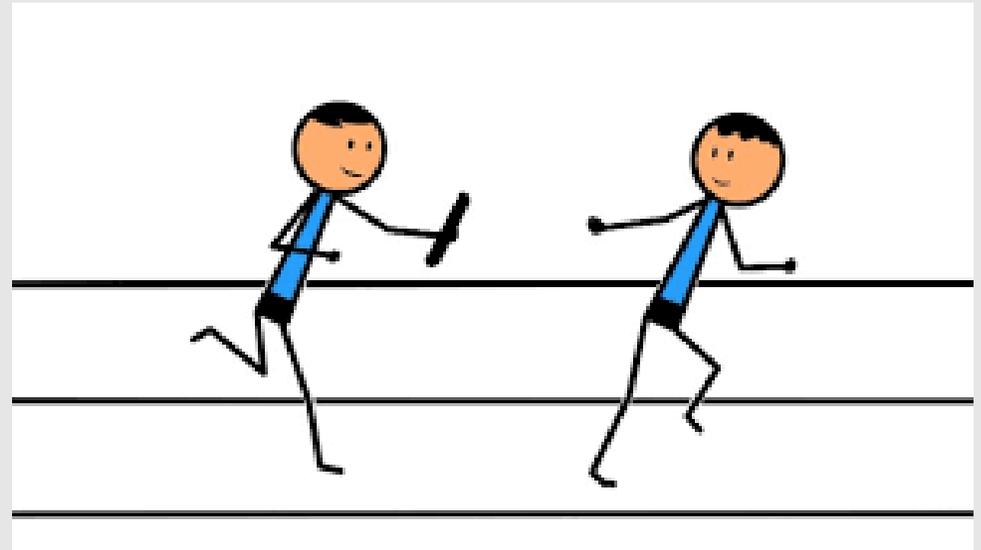
“Most of my teaching is introductory content – very difficult to bring in my research”

“The ability to achieve synergies is damaged when workload is high”

“Teaching isn’t always linked to expertise”

“My school won’t allow us to bring in multi disciplinary aspects that would allow me to draw more on my research”

Over to you .....initial  
impressions, thoughts,  
stories



# Whiteboard substitute .....



- Where can you create similarities across teaching and research?
  - in teaching themes and content?
  - In module structuring and design?
  - In teaching and delivery?
  - In student teaching and assessment?
  - In module reflection and feedback?
  - In supervision of dissertations and thesis?
- How can you leverage complementarities from teaching for research?
  - In resources ?
  - In facilities?
  - In people?
  - In shared goals?
- Can you leverage or create correlations in your research outputs?

Over to you again .....  
for takeaways

