

The potential of a mixed methods and  
multi-mode approach: A cross-national  
study of early career researchers  
(Spain, UK and Finland)

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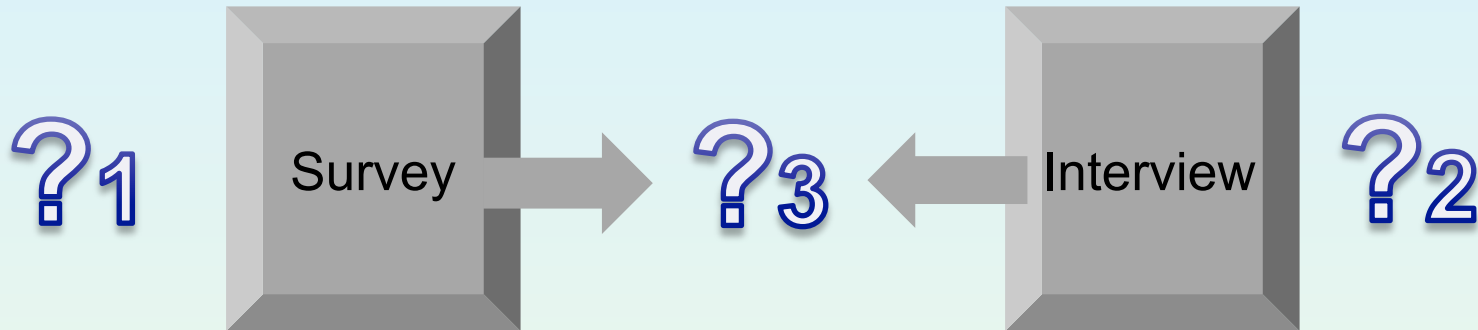
RIDSS Annual meeting

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# Goal today

- To share what we have done so far in quantitative and qualitative analysis.
- Get us thinking about innovative RQs to take advantage of mixed methods possibilities in our data.

# RIDSS design: Research questions



RQ: Researcher networks and supervisory experiences

1. Survey: RC and S support
2. Interview: RN and S support
3. What emerges from comparing 1&2 results?  
What RQ should be addressed next?

CASE I: Researcher community  
and supervisory support

**SURVEY ON POST-PHD  
RESEARCHERS**

# Research questions on RC and Supervisory support for survey data

Based on the survey data we focused on detecting social support profiles associated with the considering career turnover and the research group status.

H1: Different kinds of social support profiles in terms of experienced supervisory and researcher community support can be detected

H2: The post-PhD researchers with the different profiles differ from each other in terms of reported

- Research group status
- Considering career turnover

# Post PhD researchers from Spain and UK

<i>Country</i>		<i>Age</i>		<i>Disciplinary Field</i>		<i>Thesis format</i>		<i>Work</i>		
<i>n</i>	<i>%</i>		<i>%</i>		<i>%</i>		<i>%</i>		<i>%</i>	
<i>UK</i>	<i>98</i>	<i>35</i>	<i>&lt;30</i>	<i>11</i>	<i>Social Sciences</i>	<i>66</i>	<i>Monograph</i>	<i>81</i>	<i>Salaried Researcher</i>	<i>47%</i>
<i>Spain</i>	<i>184</i>	<i>65</i>	<i>30-39</i>	<i>71</i>	<i>Sciences</i>	<i>34</i>	<i>Articles</i>	<i>19</i>	<i>Competitive award</i>	<i>36.5%</i>
			<i>40-49</i>	<i>11</i>					<i>Outside University</i>	<i>5%</i>
			<i>&gt;50</i>	<i>7</i>					<i>Unemployed</i>	<i>11.5%</i>
<i>Total</i>	<i>282</i>	<i>100</i>	<i>Total</i>	<i>100</i>	<i>Total</i>	<i>100</i>	<i>Total</i>	<i>100</i>	<i>Total</i>	<i>100</i>

# Measures & analysis

A series of exploratory factor analyses using the ML extraction method with both varimax and direct oblimin rotations were conducted.

Both separately UK/Spain and for combined sample

To examine the social support profiles, a cluster analysis was performed on the two supervision and researcher community scale factors.

A K-means non-hierarchical clustering method was used to determine the best number of clusters.

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<i>Researcher community support</i> (8 items adapted from Pyhältö, 2015)	Supervisors' personal support and acknowledgement	I receive encouragement and personal attention from my supervisor(s). I feel that my supervisor(s) appreciate my work. I feel appreciated by my supervisor(s). I can openly discuss any problems related post-doc research with my supervisor(s).
	Community support and acknowledgement	My expertise is put to use in the research community. I feel that the other members of my research community appreciate my work. I feel accepted by my research community. There is a good sense of collegiality among the researchers I interact with. I receive encouragement and support from the other researchers.

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Table 1. Descriptives for supervisor's support, community support, reseach group status and considering turnover

Items/Scales	N of items	Alpha	Mean	SD	Min	Max
Supervisor's support	4	.95	5.07	1.81	1	7
Community support	5	.88	5.11	1.25	1	7
Reseach group status	Group 30 15,3%	Alone 81 41,5%	Both 84 43,2%			
Tunrover intentions	Yes 67 34,5%	No 127 65,5%				

There were no statistically significant differences between Spanish and UK researchers in the variables.





## The support profiles and research group status/turnover intentions

- The factor structures are similar for UK/Spain samples -> indicating good reliability/validity of the measures developed with both samples -> justification for combining the data sets.
- Two distinctive support profiles were identified  
-> similar than among DS
- Majority of participants employed adequate support – profile.
  - i.e. as value of supervisory support increases the variation in the community support decreases.
- Researchers employing adequate support profile
  - Were less likely to consider leaving their posts (Chi Square = 15.74,  $p < .001$ )
  - Were more likely to work in research group than alone (Chi Square = 10.49,  $p < .01$ )

CASE 2: Researcher networks  
and supervisory support

**INTERVIEWS WITH UK POST-  
PHD RESEARCHERS**

# Research questions

1. What kinds of individuals and groups constitute individuals' networks? (all 11)

- What role did past experience play in their present communities?

2. To what extent did individuals report *effortful* (*lack of effortful*) *behaviour* in creating their networks? (4)

- To what extent was the latter related to limited degrees of freedom or lack of motivation?

# Participants

- RQ1:
  - 7 females, 4 males
  - 4 1<sup>st</sup> yr post-PhD
  - 3 in 2<sup>nd</sup> yr
  - 1 in 3<sup>rd</sup> yr
  - 2 in 5<sup>th</sup> yr
  - 1 in 7<sup>th</sup> yr
- RQ2:
  - 2 in 2<sup>nd</sup> yr (most and least number of connections in 2<sup>nd</sup> year of experience: *Rob* and Gord)
  - 2 in 5<sup>th</sup> yr: *Sandra*, Kelsey

# RQ2 Agency: Results

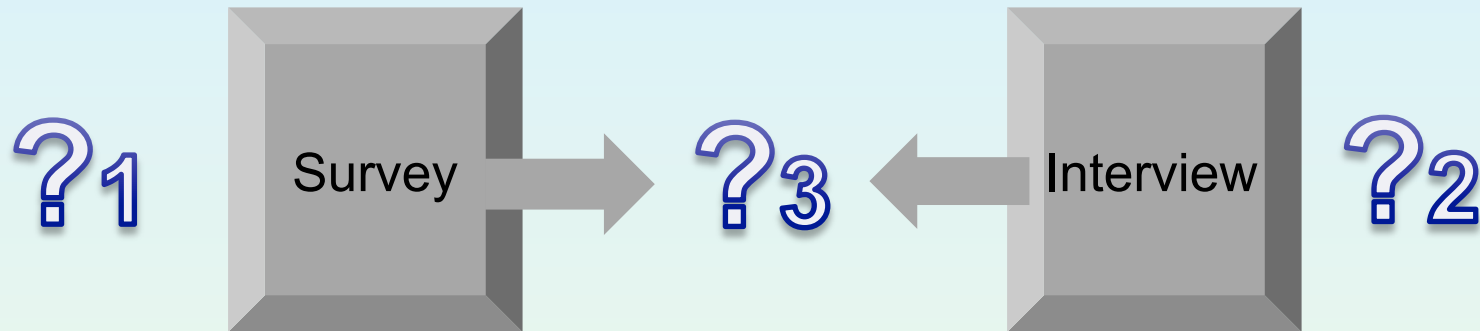
- **Rob:**
  - Many multi-institutional connections with individuals – past and present; also previous supervisor
  - Efforts to build network and stay in contact
  - Results **fit** with survey: + RC, Supervisor support, Engagement
- **Sandra:**
  - Many multi-institutional/international connections; also present supervisor
  - Leaving; not personally engaged in her/supervisor's research
    - 'If you disconnect me from my supervisor, I'm ...outside the group ...research is something ...that I [don't] want to dedicate any more time to, so I'm not ...looking for a more ...central role.
  - ALSO family-work tension
  - Results **don't fit** with survey: + RC, Supervisor support, Engagement; BUT **fit** with Exhaustion

# Comparing the analyses and next steps: what is striking?

**Sandra** does not fit the profiles

- RQ3: What factors and themes are causing the detected clustering, i.e., contribute to the perceived dynamics?
  - Variation in reduced RC and S support needs to be explained.
  - No differences in the profiles in exhaustion need to be explained.
  - Dynamics between the R and RC is affected by other issues too.

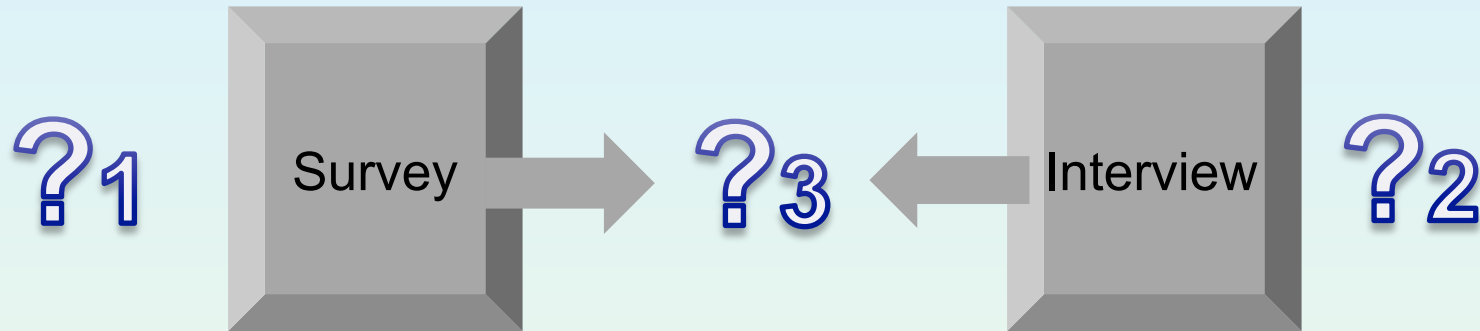
# RIDSS design: Research questions



- RQ 3: What factors and themes are causing the detected clustering, i.e., contribute to the perceived dynamics?
  1. Refining the profiles with scaled and open-ended survey data.
  2. Checking it again against interview data
  3. Refining the instruments



# RIDSS design: Research questions



- This is an innovative way to think of mixed-methods.

Qualitative studies → Hypotheses generation

Qualitative studies pose interesting challenges to established quant → Rethinking theory

Thank you

# What might we do in the future?

- Take closer look at the differences in experienced engagement between the UK/Spain
- Compare DS/Post PhD researchers
- Take closer look at the post PhD supervision as possible mediator of RC experience
- Select the participants for the qualitative phase based on the profiles

# Issues that Kirsi wanted to know more about (DELETE?)

- The factors causing the detected clustering
- The quality of the RCs i.e. networks
- Post PhD. Researchers' experiences within these RCs
- Key experiences related to supervision/RC
- Quality of the experiences
- The function of support informal communities
- How do the support experiences evolve over time
- Effects on the outcome attributes such as productivity, career progress, funding attained etc.

# RQ 1 and literature: More exploration needed?

What literature suggested	What we found
Retain earlier connections (Laude I& Glaser, 2008)	NOT SO CLEAR No pattern of increases in individuals' connections with more experience; rather individual variation within yr
Grow networks over time extra-institutionally (Goller & Harteis, 2013; Kyvik, 2013; van der Weijden et al, 2015)	COUNTER On the whole, connections not extensive, not international even for those with many years' experience International connections result of a) PhD work outside the UK ( <i>surprising</i> ) or b) influence of supervisor's research.

# RQ 2 and literature: More exploration? (4 only)

What literature suggested	What we found
Intention, motivation will influence investment, effortful behaviour, (agency) in networks (Goller & Harteis, 2013; Bazeley, 2003; McAlpine et al., 2014).	YES, INDIVIDUAL VARIATION IN EFFORTFUL BEHAVIOUR E FURTHER) Rob and Kelsey, the 2 with largest set of connections, described building and drawing on their networks Lack of agency: Sandra not invested in her network for her own research but for her supervisor's.
Weakly embedded institutionally Grow networks <i>extra-institutionally</i> (van der Weijden et al, 2015)	PARTLY Department not perceived as place of intellectual support ( <i>confirming</i> ), so needed to look externally
Supervisor role: collaborations linked to more research output (Scaffidi & Berman, 2011); PPR & supervisors do not agree on supervisor role re networks (Bonetta, 2010; 2011)	GENERALLY NOT MENTIONED

# What might we explore based on these independent analyses?

- Influence of different literatures?
- Past-present trajectories and how they might influence results?
- Future?
  - Quan > qual:
    - Support profiles to drive qualitative analysis
    - Dig deeper qualitatively re relationship between supervisor network
  - Qua > quan:
    - Role of agency in terms of network; examine research interests
    - Difference in quality of networks; examine publication profiles

# Data collection: Planned/intended

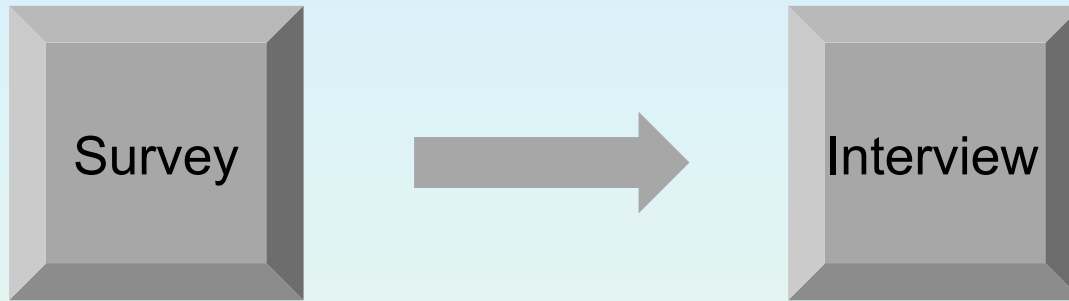
	Spain	UK	Finland
Survey: total	1888	393	402
Survey: PhD	1283	295	402
Survey: PPR	184	98	?
Interview: total	30	20	20
Interview: PhD	20	20	10
Interview: PPR	10		10



# Researcher Identity Development in the Social Sciences (<http://www.fins-ridss.com>)

- Goals:
  - Examine the experiences of PhD and post-PhD researchers in social sciences
  - Use the results to create a digital space
- Key constructs today:
  - *Agency*, including regulation of cognition, behaviours and emotions regarding academic activities
  - Perceptions/relationships with *scholarly communities* including supervisor, research team members and scientific community of reference; includes *work environment*
  - Experienced *engagement* in research and experienced *burnout*

# RIDSS design: Data collection



- **Survey:**
  - Piloting the protocols
  - Recruitment: by national groups through universities, listservs, etc.
  - Developing e-form(s)
  - Recruiting participants for interview
- **Interview:**
  - Piloting and modification
  - Recruitment: by survey follow-up (and snowballing in UK; interested individuals completed survey before interview)
  - Training of national team members

# What did the literature suggest?

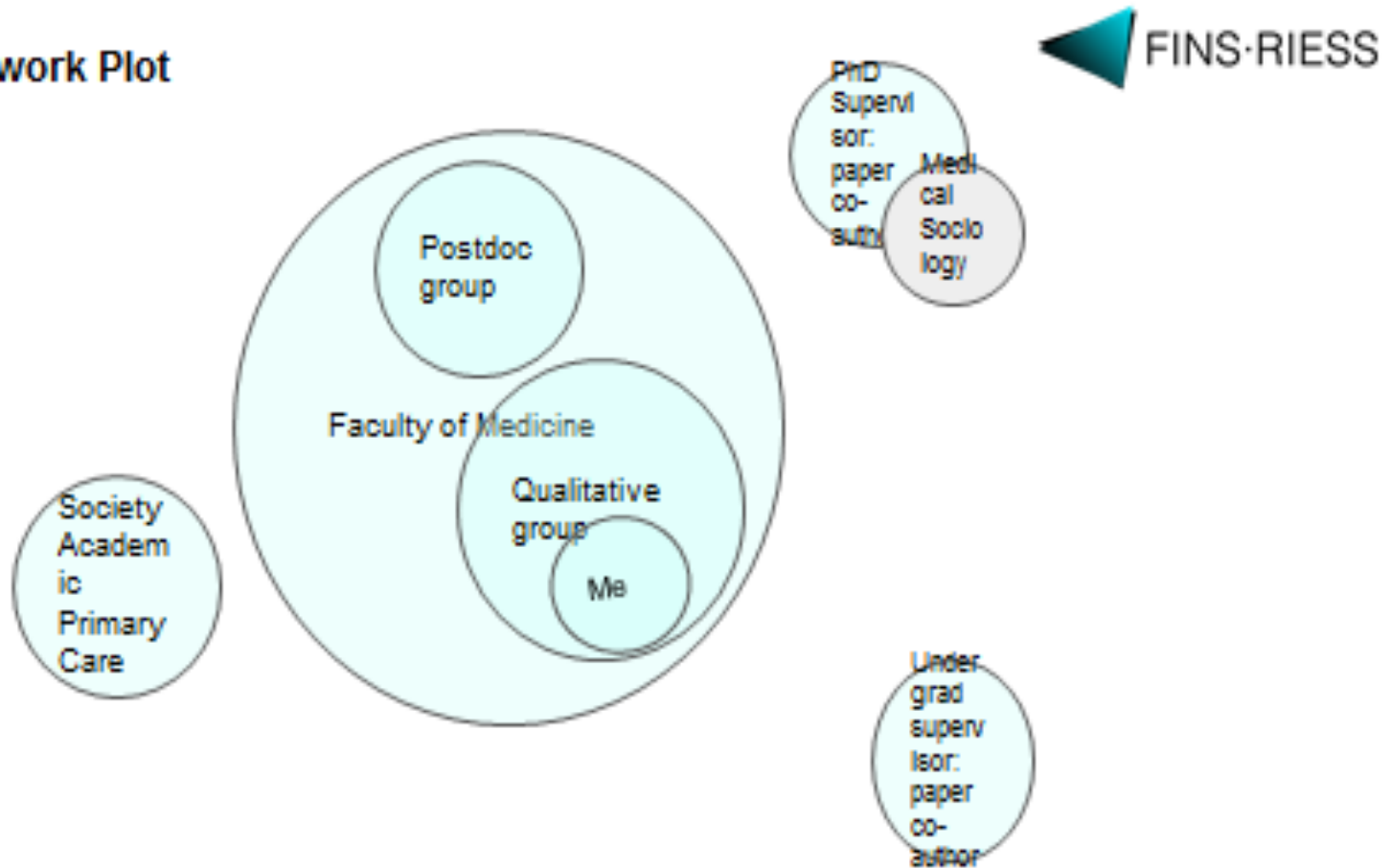
- Community/networking
  - Retain earlier connections (Laudel & Glaser, 2008)
  - Grow networks over time extra-institutionally (Goller & Harteis, 2013; Kyvik, 2013)
  - Expected to be agentive (effortful behaviour) (Goller & Harteis, 2013; Bazeley, 2003)
- Supervisor
  - Weakly embedded institutionally (van der Weijden et al, 2015)
  - Excellent to good relationship > good research progress (Scaffidi & Berman, 2011)
  - Collaborations more likely to produce more research output (Scaffidi & Berman, 2011)
- Lack of agreement between PPR and supervisors as to role of supervisor in establishing networks (Bonetta, 2010; 2011)

# Participants and approach

- UK post-PhD researchers: 7 females, 4 males
  - 4 in 1<sup>st</sup> year post-PhD
  - 3 in 2<sup>nd</sup> year
  - 1 in 3<sup>rd</sup> year,
  - 2 in 5<sup>th</sup> year
  - in 7<sup>th</sup> year
- Re communities/supervisor, in interview made network map and explained origins and roles of those noted
  - Represent your research network in the scientific community at this time, that is, the individuals and the groups you interact with that are important in your research experience/ network and the connections between them as well as your position in the community.

# Sample map

## Network Plot



# RQ 1: variation

Connections PE*	Institutional I/G/O/J**	External national I/G/O/J**	External international
<b>Individual Yr</b>			
<b>1<sup>st</sup> yr</b>			
Anne	2I (PE), 1G, 1O	2O	X
Abbey	2I, 2G	2O	X
Geri	1I, 2O	2O, 2J	X
Jake	X	1G	2G, PE since he moved to UK after degree
<b>2<sup>nd</sup> yr</b>			
<b>Gord</b>	<b>1G</b>	<b>1I (PE), 3O</b>	<b>X perhaps due to his professional field</b>
<b>Rob</b>	<b>2G</b>	<b>5I all PE, 2G both PE, 1O</b>	<b>1G research worldwide, 1O, PE since he spent time in other country during degree</b>
Sue	X	2O, 3I of which 1 PE	X
<b>3<sup>rd</sup> yr</b>			
Fred	4I, 1G	1O (epistemological police)	X
<b>5<sup>th</sup> yr</b>			
<b>Kelsey</b>	<b>1I, 1G, 1O</b>	<b>1G, 1O</b>	<b>1G</b>
<b>Sandra</b>	<b>1I, 1G</b>	<b>2G</b>	<b>4G</b>
<b>7<sup>th</sup> yr</b>			
Faye	1G, 1O	1G research area; also networking with those who have left the academy	1G research worldwide

## RQ2: Cameos

- Gord, 2<sup>nd</sup> yr, 40, Social work
  - Lecturer (teaching only), so research ‘on the side’
  - ‘It’s difficult, having children and trying to produce academic work to the level that one wants.’
  - Trying to ‘fight for [research] recognition’ in a ‘contested space’
- Rob, 2<sup>nd</sup> yr, 42, Education
  - Lecturer (teaching-research)
  - 2 children; ‘I have an agreement with my wife where I’m only allowed to work a maximum of three evenings a week’
  - Hope for the future: ‘a lot more publications and ...more research experience ...continuing to develop and make myself visible’

# RQ 2: Cameos

- Kelsey, 5<sup>th</sup> yr, 39, Life science
  - PPR, wants research-teaching position
  - Hard to balance research with teaching and admin alongside family
  - ‘I think you get on this train which is really fast, and it’s about publishing and ...networking and all these different things.’
- Sandra, 5<sup>th</sup> yr, 36, Sociology, had postdoc fellowship
  - PPR until previous year; quit, now looking for employment
  - Stopped because ‘where I was working ...there were a lot of expectations of me being there long hours and being very productive, which were things that I couldn’t manage with...the responsibility [for] a young family as well.’
  - ‘It’s a very...competitive field and ...there’s a lot of pressure to publish most of the time ...it takes away a bit of, eh, the enthusiasm that I felt about doing research.’



## RQ2: agency, effortful behaviour (4 cases)

- Individuals with most and least number of connections in 2<sup>nd</sup> year of experience (Rob and Gord)
- Individuals with five years' experience (Sandra, Kelsey)

## RQ1: interpretation

- No clear pattern of increases in individuals' connections as they gained experience; individual variation was more evident. (counter)
- Generally, relatively few individuals as opposed to groups/ organizations. (unexpected)
- Formal organizations, often quite large, are strongly present. (unexpected)
- *Conclusion: need to explore possible influence of effortful behaviour*

# RQ 1 and literature: what did we find?

What literature suggested	What we found
Retain earlier connections (Laude I& Glaser, 2008)	COUNTER No pattern of increases in individuals' connections with more experience; rather individual variation within yr
Grow networks over time extra-institutionally (Goller & Harteis, 2013; Kyvik, 2013)	COUNTER On the whole, connections not extensive, not international even for those with many years' experience
Weakly embedded institutionally (van der Weijden et al, 2015)	UNEXPECTED Formal organizations, often quite large, are strongly present. (unexpected)
Supervisor role: positive > good research progress (Scaffidi & Berman, 2011); PPR & supervisors do not agree on supervisor role re networks (Bonetta, 2010; 2011)	EXPLORE FURTHER Little reference to supervisor
<i>Conclusion</i>	EXPLORE FURTHER <i>Influence of effortful behaviour (e.g., Goller &amp; Harteis, 2013; Bazeley, 2003)</i>

# Research questions

1. What kinds of individuals and groups constitute individuals' networks? (all 11)

- What roles did these individuals and groups play in their work and careers?
- What role did past experience play in their present communities?

2. To what extent did individuals report *effortful* (*lack of effortful*) *behaviour* in creating their networks? (4)

- To what extent was the latter related to limited degrees of freedom or lack of motivation?
- How did individuals negotiate their departmental affiliations including relationship with supervisor/manager?

# RQ1: Types/roles of connections; past experience

- Individuals
- Relatively informal groups, e.g., peers
- Semi-formal groups, e.g., research team
- Organizations, e.g., scholarly society, university
- Organizational units, e.g., faculty
- Jurisdictional units, e.g., Scottish government, funding council.

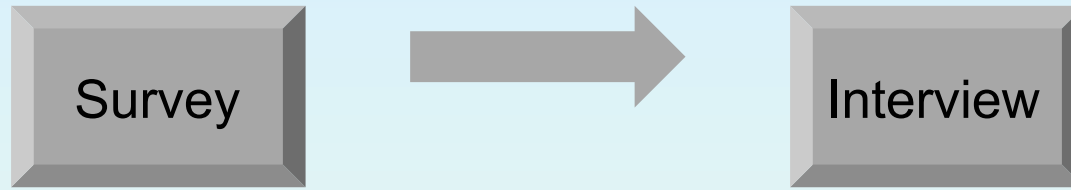
## RQ 2: effortful behaviour

	Institutional	National Individuals	National Societies, groups	International
Gord, 1 <sup>st</sup> yr	L-M	L	M	X
Rob, 2 <sup>nd</sup> yr	L-M	H	M	L
Kelsey, 5th yr	L-M	L	L	X
Sandra, 5 <sup>th</sup> yr	X	X	M	M-H
Our interpretation	Not a good source of intellectual support	Source of support as well as career advice, feedback, etc.	Present but not necessarily personal interactions > points of reference, sources of influence	Not generally present

# Exploring the possibilities

- So far, independent examination of quantitative and qualitative data
  - Separate role, country
- Other independent possibilities:
  - Combine/compare role, country
- Mixed methods possibilities:
  - What discussions are we having now based on independent analyses already done?
    - *Qual > quan*
    - *Quan > qual*

# RIDSS design: Construction of protocols



- **Survey:**
  - Key constructs: perceptions of research, interest, researcher community and supervisory support, writing, engagement, burnout, critical incidents
  - Drawing on doctoral experience survey > developing measures comparable across 3 countries and 2 early career researcher roles
  - Translation > back-translation: 3 languages
- **Interview:**
  - Key constructs examined independently, e.g., visual methods
  - Drew on survey responses to key constructs also
  - Translation > back-translation: 3 languages
  - Planned for virtual data collection
  - Protocol included rationales for questions, grid with survey responses, long/medium and short-term planning, etc.



# RQ1 Networks, past experience: Results

- No clear pattern of increases in individuals' connections as they gained experience; individual variation was more evident. (counter)
- Generally, relatively few individuals as opposed to groups/ organizations. (unexpected)
- Formal organizations, often quite large, are strongly present. (unexpected)
- Few international connections