Systems thinking in education:
Preparing for leading innovation in complex dynamic health systems

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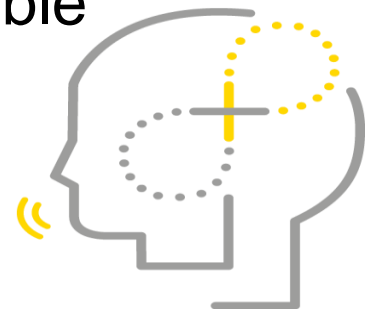Professions Education

Objective

- To explain how systems thinking can help prepare health professionals for leading innovation in complex dynamic health systems

- To outline the practical implications for educating and training healthcare staff (and students)

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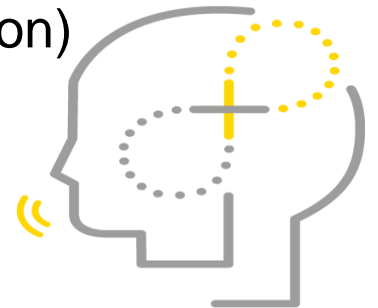for Research in Health
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Background

- The contemporary healthcare environment is a complex dynamic system that is interconnected and comprised of multiple agents

- Preparing health professionals and their students for being able to work interdependently in complex adaptive systems has been recognised as important (Frenk et al. 2010)

- However, it is not so clear what health professionals do need to know and be able to do in this system to cope with the many challenges to get the best outcomes for patients, the organisation and the communities they serve

- It seems useful to reflect on complexity, the challenges it poses for health professionals and their roles as educators and leaders, and the possible implications for education and training

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Examples of challenges

- On the level of the clinical micro-system (departmental)
  - Competing demands related to clinical service provision and education/training
  - Limited professional development opportunities impacting on job satisfaction, staff retention and recruitment
  - The desire to innovate but limited organisational support to do so

- On the level of the meso-system (organisational)
  - Groupthink (thinking or making decisions as a cohesive group, often unchallenged and resulting in compromised outcomes)
  - Limited flexibility for interprofessional learning
  - Poor research culture impacting on the integration of evidence into clinical education and practice.
  - Different priorities, needs and stakeholder agendas (e.g. affecting patient satisfaction)

- On the level of the macro-system (socio-political)
  - Funding

Key challenges for leaders (Scott 2017)

- Staff – relationships, complaints, engagement and quality
- Having to manage up and down
- Managing change
- Bureaucracy and "value-add"
- Appropriate administrative support
- Student matters
- Balancing time and workload
- Working with reduced resources
- Limited recognition by senior staff

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Metaphors that best describe your role as a leader (Scott 2017)

- Herding cats, juggling, being the meat in the sandwich

- Swimming in a tidal pool, working with a dysfunctional family

- Running a bar, being a tour guide, advancing through bureaucratic mud

- Trying to nail jelly to the roof whilst putting out spot fires with my feet

- Living in a medieval castle, being in *Ground Hog Day*

- Being a gardener or conductor

- Trying to turn around an iron ore carrier and being a 21st century Sisyphus

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Key features of complex systems

- Complex adaptive, relational & dynamic – interactions & relationships matter!
    - The "agents" within the system (e.g., patients, health professionals, students, teachers, administrators, university and hospital governance board members, policy makers, etc.) interact in a web of relationships that shape how the system performs.

- Emergence, continual flux and fuzzy boundaries

- Interdependent & iterative – feedback loops, non-linear

- Distribution of power and authority

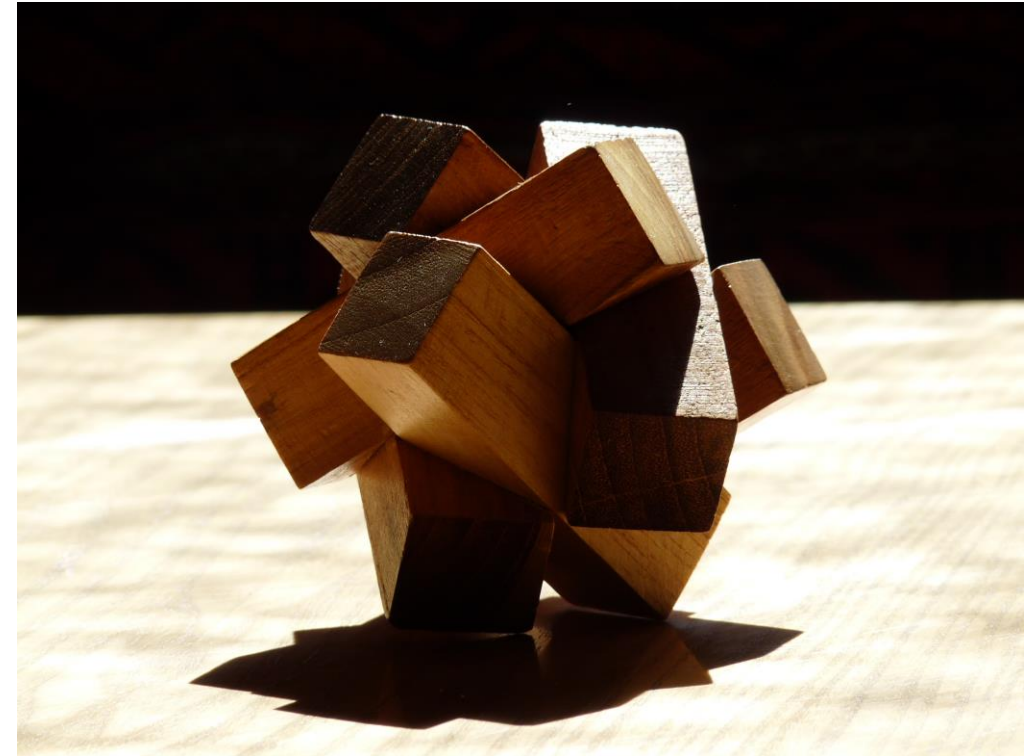- Diversity of knowledge and experience

Making sense of complexity: A conceptual complexity model
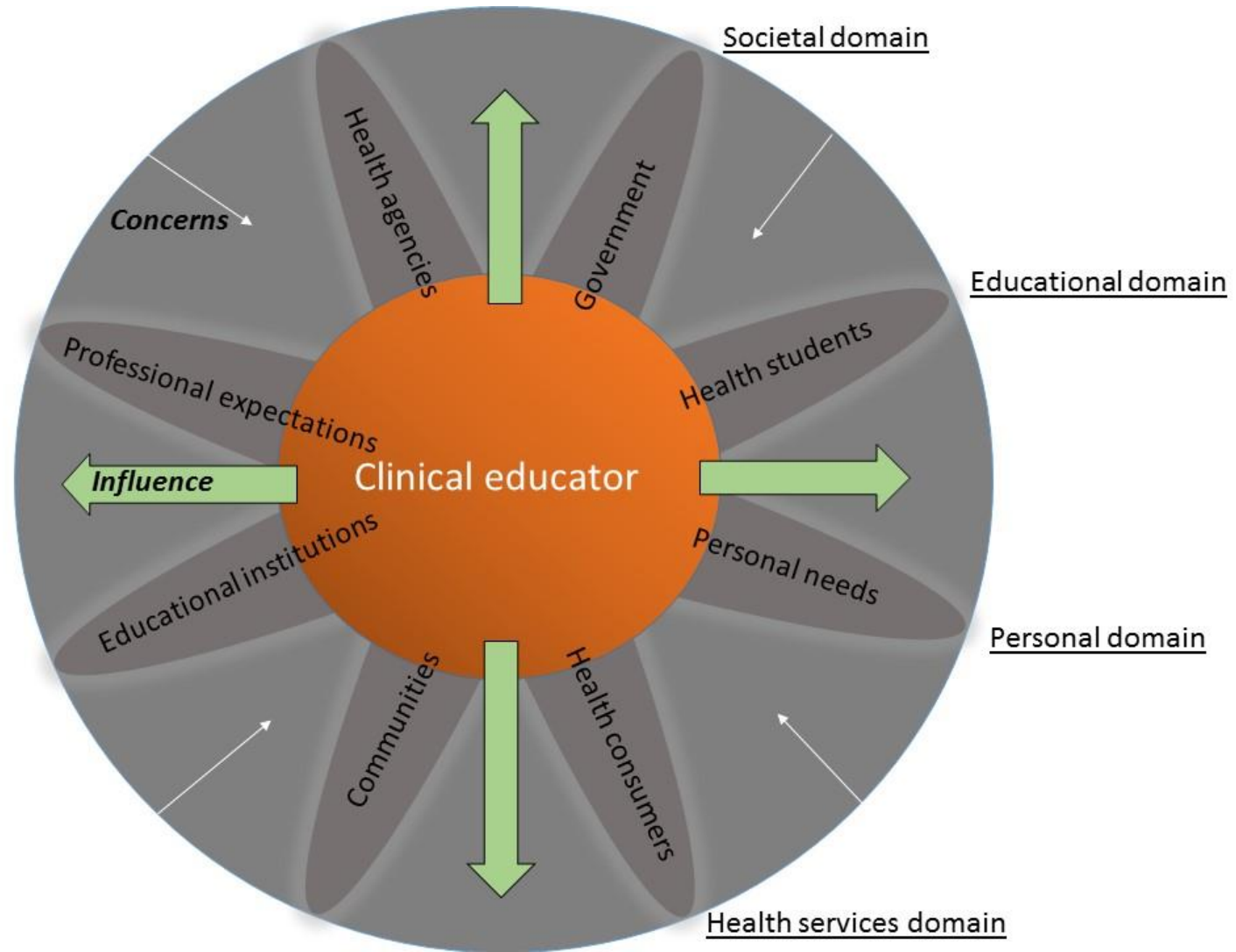
1. Key stakeholders in four domains
   - Societal
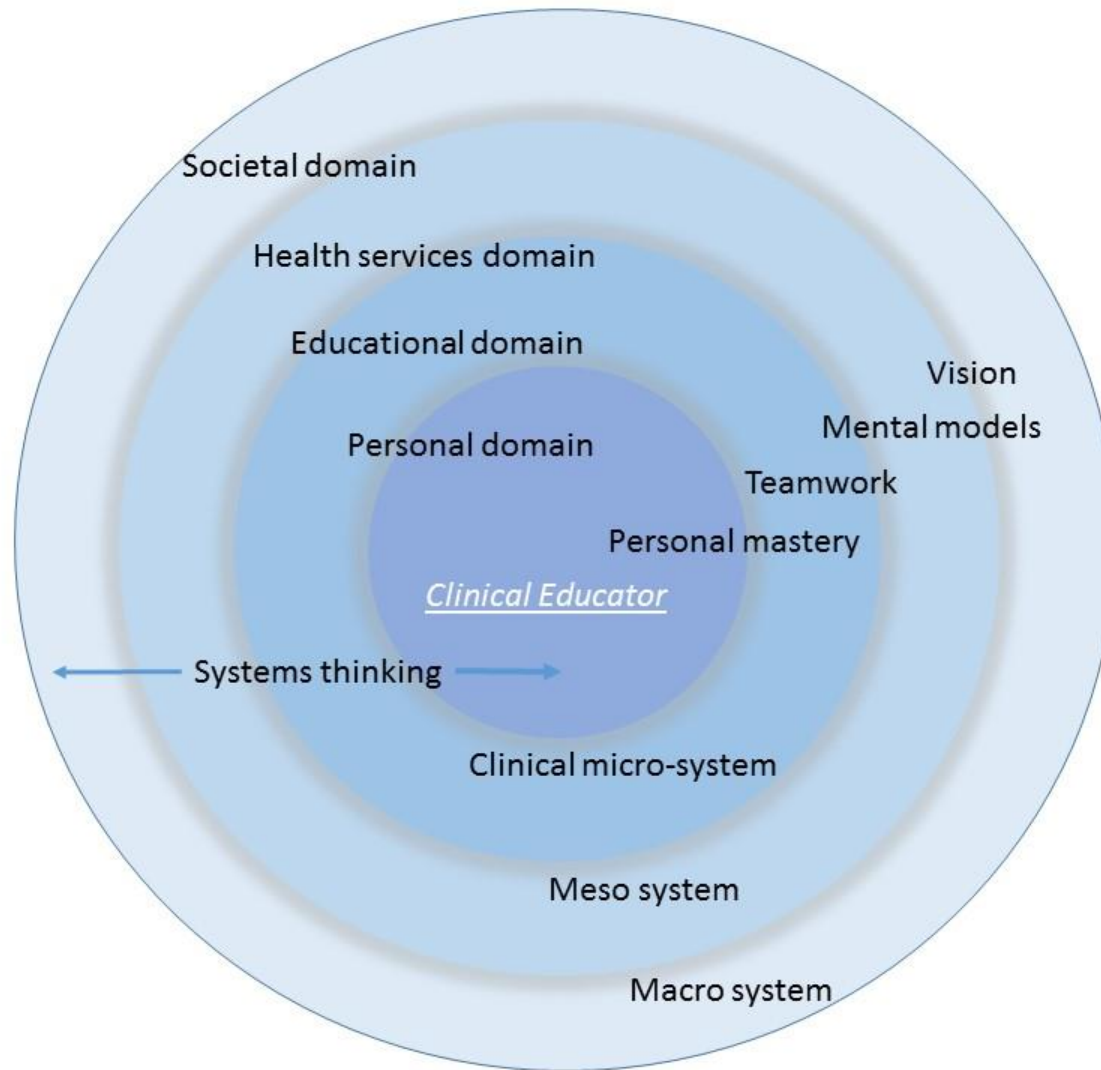   - Educational
   - Personal
   - Health services

2. Three system levels
   - Micro
   - Meso
   - Macro

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(Schoo & Kumar 2018)

(Schoo & Kumar 2018)

Concept A: **Learning organisation & Leadership**

❑The five disciplines of a learning organisation:

- shared vision

- mental models

- team learning

- personal mastery

- systems thinking (the corner stone)   (Senge, 1990)

❑Leadership (incl. self), positive culture, teamwork
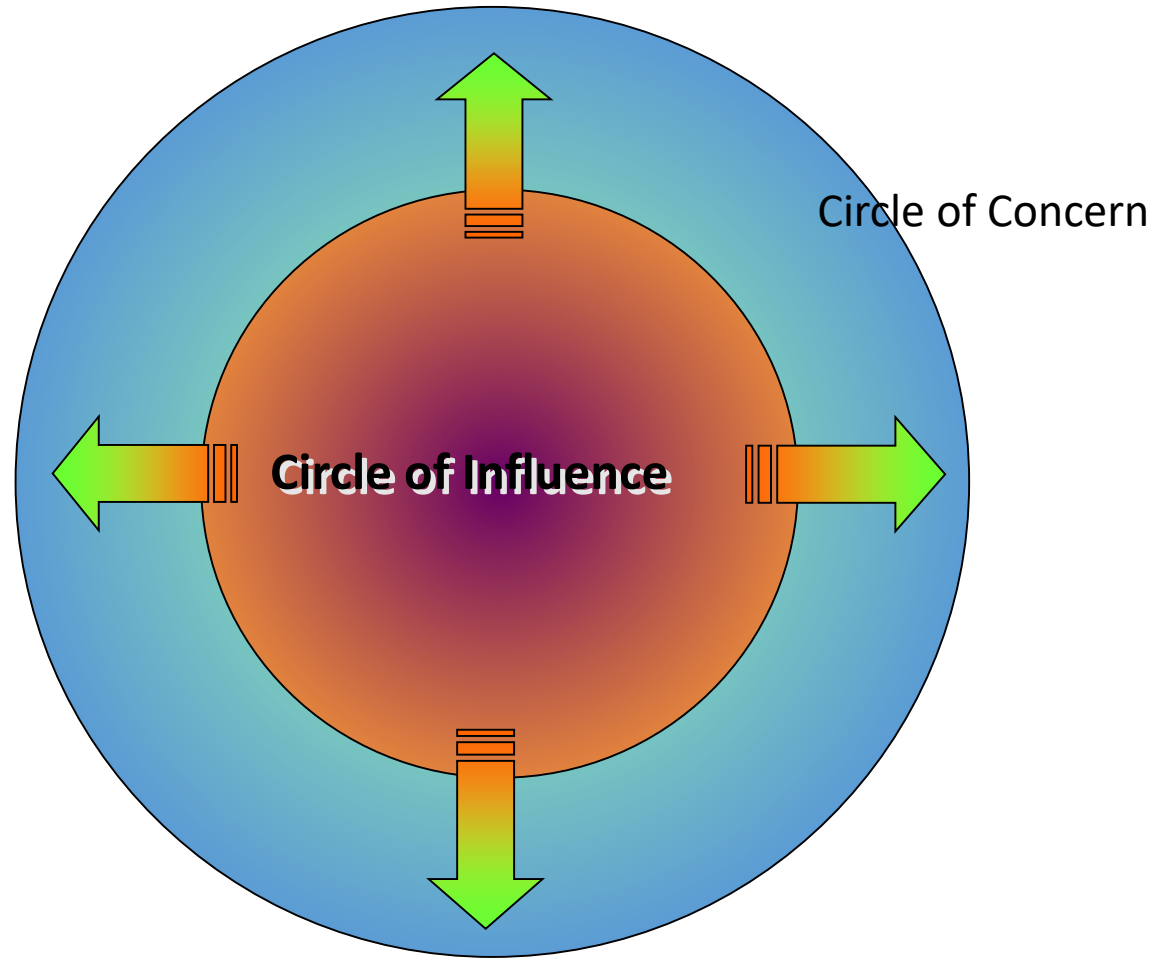
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Leadership and Complexity (Mackey 2007)

Traditional Systems	Complex Adaptive Systems
Are controlling, mechanistic	Are open, responsive, catalytic
Repeat the past	Offer alternatives
Are "in charge"	Are collaborative, co-participating
Are self preserving	Are adaptable
Resist change, bury contradictions	Acknowledge paradoxes
Are disengaged, nothing ever changes	Are engaged, continuously emerging
Value position and structures	Value people
Hold formal position	Are shifting as processes unfold
Set rules	Prune rules
Make decisions	Help others
Are knowers	Are listeners

Concept B: **Self Empowerment** (Covey)

Circle of Concern

Circle of Influence

Concept C: **Domains of EI** (Goleman et al. 2002)

1. Personal competence
   a. Self-awareness
   b. Self-management

2. Social competence
   a. Social awareness
   b. Social skills (Relationship management)

So what does this mean for leadership?

1. Recognising and embracing complexity and interdependence

2. Self-empowerment (self and social awareness as well as management)

3. Systems thinking - Awareness of complexity and what it means for the individual, team, department, organisation and the system as a whole

4. Identifying implications for education and training to prepare staff and students for working in complex systems, and supporting them

5. Supporting interdependence and building capacity across systems by developing capabilities (vs competencies only)

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Most relevant capabilities (Scott 2017)

1. Understanding personal strengths/limitations
2. Able to organise work & manage time
3. Remaining calm under pressure
4. Energy, passion & enthusiasm for learning
5. Being transparent and honest
6. Empathising & working productively with staff from different backgrounds

7. Admitting to & learning from errors
8. Being true to personal values & ethics
9. Making sense of, and learning from, experiences
10. Thinking creatively & laterally
11. Being willing to take a hard decision
12. Maintaining a good work/life balance

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Competency versus capability

What is competency or competence?

(i) observable performance;

(ii) the standard or quality of the outcome of the person's performance; or

(iii) the underlying attributes of a person such as their knowledge, skills and abilities

(Hoffman, 1999)

What is capability?

- The extent to which individuals can adapt to change, generate new knowledge, and continue to improve their performance (i.e. being equipped/prepared to deal with unknown situations)

(Sarah W Fraser, Trisha Greenhalgh 2001)

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Implications of a complexity perspective for individual and teams

- Developing <u>understandings of complexity</u> and how a complex system is organised and works

- Developing <u>personal awareness</u> about one's role and performance within a complex system can be unpredictable, interconnected and emergent

- Developing awareness of the <u>many stakeholders</u> within the complex system and their <u>agendas</u>, <u>interests</u> and <u>priorities</u>

- Reframing challenges and problems as <u>learning opportunities</u>

- Looking at the complex system from the <u>inside out and the outside in</u>

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Implications of a complexity science perspective for the organisation

- Collective <u>awareness</u> of complexity, what it means/looks like

- Opportunities for critical <u>reflection</u>, <u>dialogue</u> and <u>questioning</u>

- Leveraging workplace networks and communities as sites in which <u>sense-making</u>, reflection and inquiry are distributed

- Incentives (e.g. time and resources) and <u>permission</u> for individuals/teams to find solutions for complexities

- Organisational and departmental <u>support</u> for continuing professional development targeted at capability development

- <u>Shared</u> vision, values and goals, and <u>empowering</u> people

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Implications of a complexity science perspective for systems

- Professional associations & clinical guidelines for <u>best practice</u>

- Governments (local, regional, national), policymakers and funders need to recognise <u>systems thinking </u>perspectives in making policy and funding decisions

- Develop policy or funding strategies that are <u>long-term</u>, span jurisdictions and are <u>sustainable</u>

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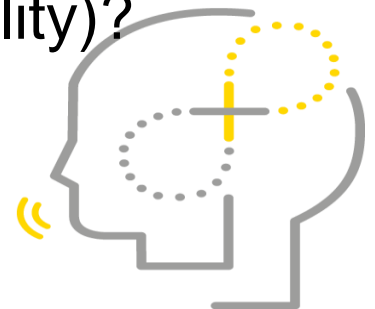
Implications for IP education & training

Foster a systems mindset that includes:

- Understanding complex adaptive systems, and how these articulate with other systems/domains on the micro, meso and macro level

- Understanding yourself and your role in the system

- Recognising needs of others (and their roles in the system)

- Recognising the possible concerns (e.g., groupthink)

- Recognising the possible opportunities

- Potential impact of resonant leadership styles

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Some questions/opportunities for policy

- Can evidence-based policy support complex adaptive systems and enhance systems thinking and collaboration between macro, meso and micro systems (public and private), and facilitate the leadership and innovation needed to optimise effective and needs-based health services?

- Can such an approach better prepare students and health professionals to function successfully within complex adaptive systems, and can that lead to meaningful professional development, career pathways, job satisfaction and retention in the health workforce?

- Can such multi-level approach enhance organisational development (e.g., interprofessional collaborative practice, service quality and sustainability)?

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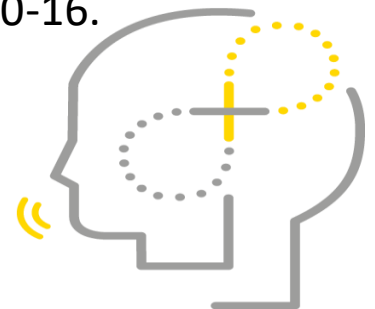Flinders
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In conclusion

- Healthcare staff (and students) need to work and <u>lead</u> in a way that best serves the consumers in a dynamic and complex health services environment.

- Health professionals need to understand and analyse the complexity within which they work so they can recognise challenges in the system and identify opportunities to optimise their influence and reach.

- Education and training needs to go beyond the acquisition of knowledge and clinical skills alone (competency vs capability) to support innovation and build capacity

- Complexity thinking can help healthcare staff <u>leading</u> teamwork and patient-centred interprofessional practice that can be sustained over time and under changing conditions (which could be supported by policy).

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Thank you!