

Thoughts on Developing An Interdisciplinary Team

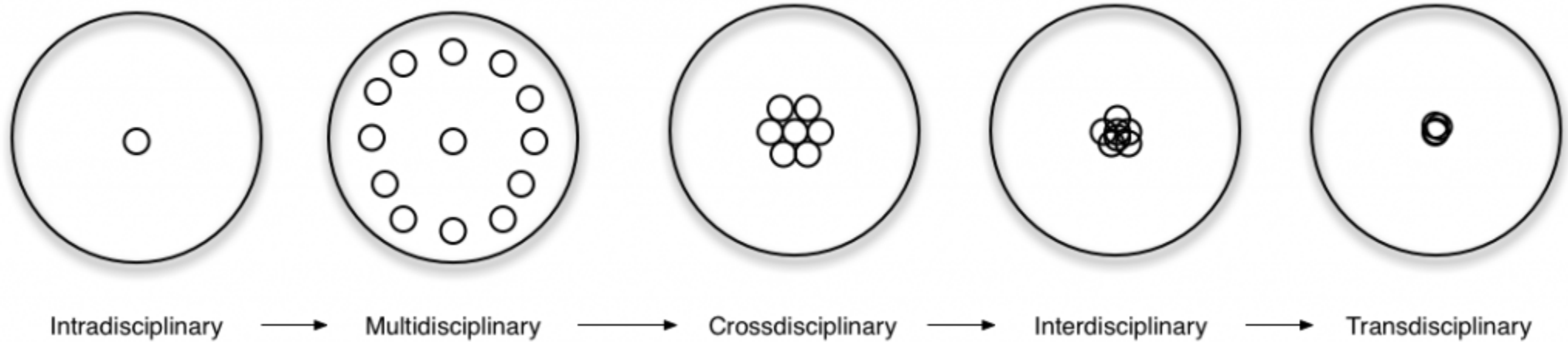
What, Why and How...

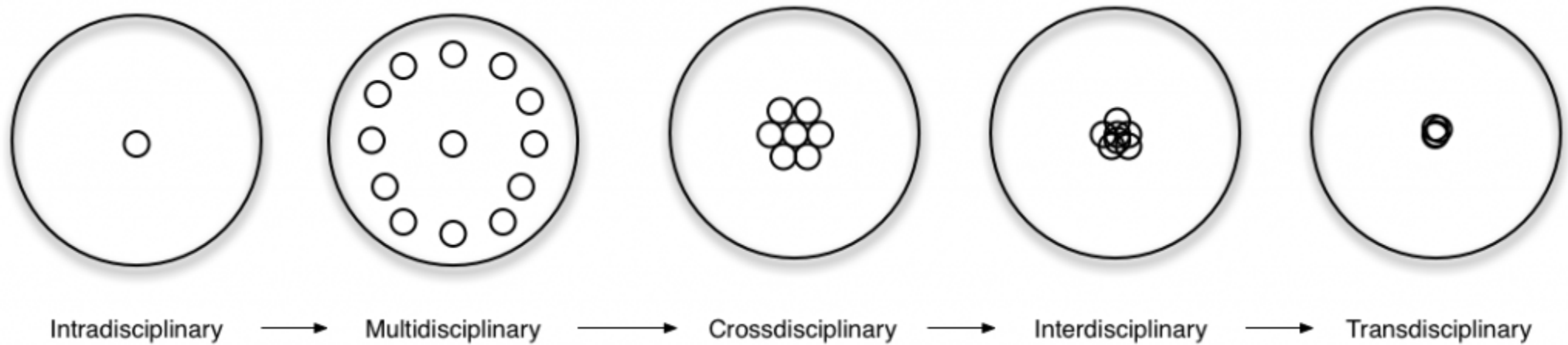
Thomas L. Willett, PhD (Biomedical Engineering), PEng (Mechanical Engineering)

Assistant Professor

Systems Design Engineering

Got Interdisciplinarity?





- ***Intradisciplinary***: working within a single discipline.
- ***Multidisciplinary***: people from different disciplines working together, each drawing on their disciplinary knowledge *[and framework]*.
- ***Crossdisciplinary***: bridges are formed and crossed by those involved. *[cross training and cross application of approaches]*
- ***Interdisciplinary***: ***integrating*** knowledge and methods from different disciplines, using a real ***synthesis*** of approaches. ***[Holistic]***
- ***Transdisciplinary***: creating a unity of intellectual frameworks beyond the disciplinary perspectives. ***[Full integration]***

Why Interdisciplinarity?

- NAR related needs/problems/questions are inherently interdisciplinary
 - Interactions of multiple, complex systems
- Major funding agencies (e.g. CIHR) recognize that interdisciplinary work yields new insights and innovations
 - Creativity, New Perspectives, Error Detection
- In my research program, we conduct interdisciplinary investigation and innovation for bone health and repair
 - Overlapping spaces of mechanics, materials science, biological sciences, medicine

How to be Interdisciplinary

- Read broadly.
 - Develop breadth of knowledge, as well as depth.
- Avoid and/or challenge discipline-specific bias, dogma,...
- Be 'open minded' and flexible (in framework and language)
 - For example, consider the two meanings of the word "clinical"
- Get out of your box.
 - It is ok to be uncomfortable and learn new things.

How to be interdisciplinary

- Allow the question or need to determine the approach
 - And therefore, determine the required expertise and methods.
- In my career, becoming interdisciplinary has been somewhat organic, training in interdisciplinary settings for over 12 years.
 - And some times, it has been very uncomfortable.

How to build an interdisciplinary team

- Develop systems level, holistic understanding in order to understand your **strengths and weaknesses** with respect to the required expertise for the project
 - Knowledge
 - Methods
- Recognize/acknowledge expertise from outside your primary discipline/training
- Make friends (collaborators) who have similar interests and agendas, but who come from other disciplines, and ask them to collaborate!

How to demonstrate interdisciplinarity in a grant application

- Demonstrate an interdisciplinary approach in terms of:
 - Frameworks
 - Perspectives
 - Methods
- Demonstrate the team of applicants, co-applicants and collaborators has the expertise and skills, and include the letters to back it up.

That's all folks!

Thanks to:

- Prof. Laura Middleton, Kinesiology
- Prof. Clark Dickerson, Kinesiology

- Network for Aging Research

