

Team Science in Christian Community

*how lessons from christian living communities
inform our approaches to team science*

rachael baker, chemistry & biochemistry

amy wilstermann, biology

project origins

research in the sciences at Calvin...

...is central to student training and excellence

Challenges:

- Pace of research
- Funding
- Burnout (work-life balance)

Opportunities:

- Talented colleagues and students
- Interdisciplinary and collaborative
- Innovative
- Christian context



project origins

research in the sciences at Calvin...

Working in Teams in the Sciences

- Keep pace by maintaining research throughout academic year
- Longer-term mentoring
- Train students to work in a team context
- Create financial efficiencies

Learning from Teams in the Faith Context

- Centuries of experience living and working in community
- Called to love and care for each other
- What can we learn from their successes and failures that apply to our scientific context?

science in community

team science

What is a team?

Two or more individuals with *different roles* and responsibilities who interact *socially* and *interdependently* within an *organizational system* to perform tasks and accomplish *common goals*

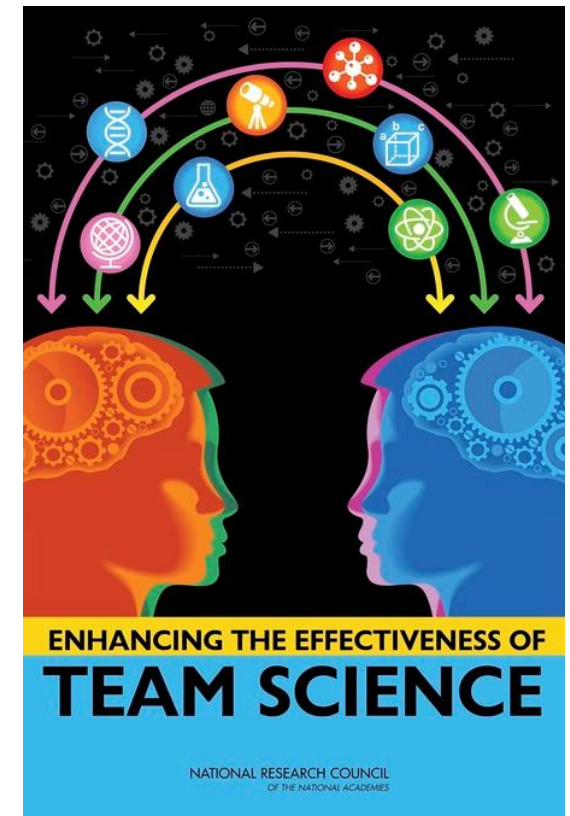


science in community

team science

What is team science?

- scientific collaboration; research conducted in an *interdependent* fashion
- new *interdisciplinary* field of inquiry
“examines processes by which large and small scientific teams.... organize, communicate, and conduct research”



science in community

team science

Why conduct research in a team context?



- Enhance *capacity* to achieve goals and objectives
- Increase research impact, novelty, *productivity*, and reach
- Improve *outcomes* for team members
- Improve *mentoring capacity*

science of team science

first steps

“The first step toward increased effectiveness is to gain understanding of the *factors that facilitate or hinder team science* and how these factors can be leveraged to improve the management, administration and funding of team science.”

Engaging the Effectiveness of Team Science, 2015

science in community

factors that facilitate team science

- Carefully designed *processes/policies*
 - Defined and shared goals
 - Team composition and defined member roles
 - Conflict resolution strategies
- *Professional development* interventions
 - Training for leaders and team members
 - Training for students (future team science participants)

“Research is needed to evaluate and refine the tools, interventions, and policies... to guide continued improvement in the effectiveness of team science.”

science in community

factors that hinder team science

- High task *interdependence*
 - Members are dependent upon each other to achieve a shared goal
 - Opportunities for conflict
- *Permeable boundaries* and high *diversity* membership
 - Membership may (will) change
 - Team members may lack a common vocabulary
- *Goal misalignment* with other teams
 - Each “team” brings insights, methods and perspectives
 - A “team” may have its own distinct goals

science in community

addressing challenges that hinder success



Science is shaped by the context in which it is done....

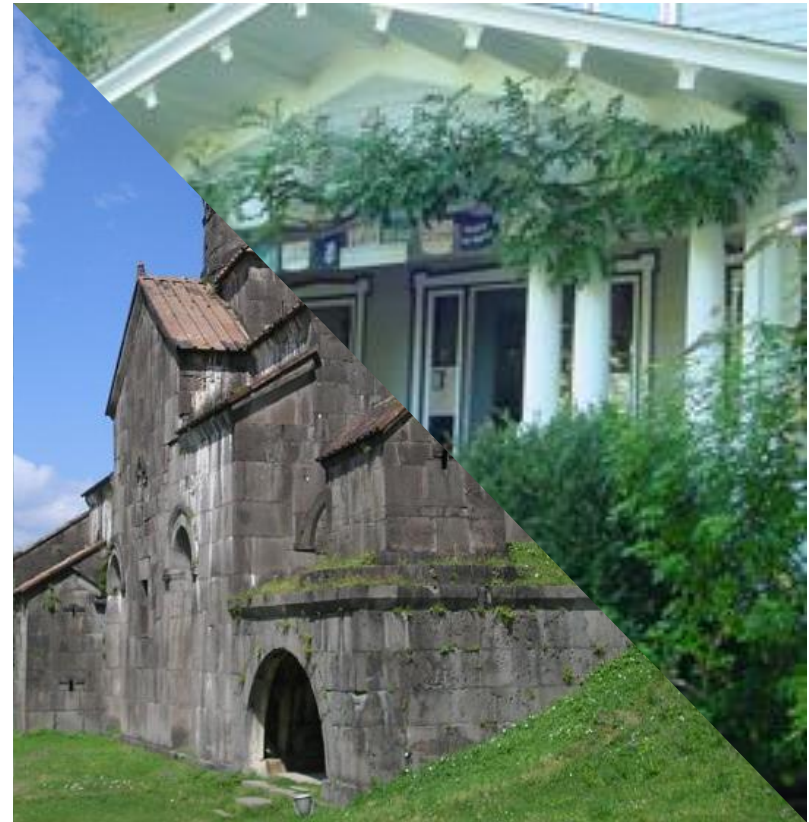
... we're at a Reformed Christian college

What value added can we gain from applying our context to the team science approach?

intentional Christian communities

what can we learn from what makes them thrive?

- Reba Fellowship, IL
 - *Intentional Christian Community Handbook*
- Jesus Army/New Creation Christian Community, UK
- Peace House, OR
- Blackburn Community, NC
- (Koinonia Farm, GA)
- (Newberry Place, MI)
- Rule of St. Benedict



intentional Christian communities

what can we learn from what makes them thrive?

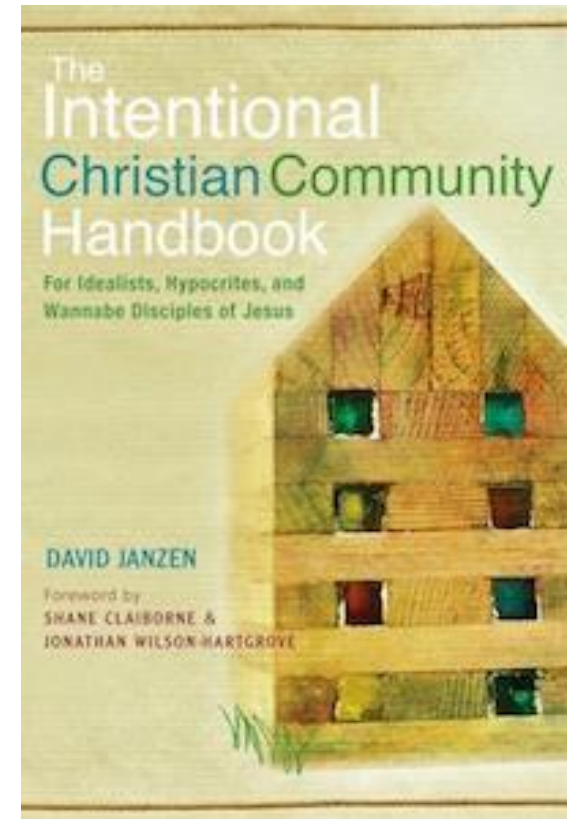
Can *principles* and *practices* of intentional communities enhance the *long term success* and *thriving* of participants in collaborative research projects?



intentional Christian communities

lessons & insights

- Shared vision/mission
- Shared rituals and practices... eating, learning, and sending
- Body of Christ model of working and living
 - Celebration of unique gifts
 - Interdependence
- Commitment and trust
- Forgiveness



intentional Christian communities

lessons & insights

- Mentorship (discipleship) strategy
 - Intentional
 - Growth-centered
 - Scaffolded
- Work/rest cycles (Sabbath) and celebration
- Shared resources
- Simplicity facilitates devotion of more time/energy to priorities



intentional Christian communities

applications to team science

- High task *interdependence*
 - Shared vision/mission
 - Body of Christ model of working together
 - Commitment and trust
 - Forgiveness
- *Permeable boundaries* and high *diversity* membership
 - Mentorship – intentional, growth-centered, scaffolded
 - Shared rituals and practices
- *Goal misalignment* with other teams
 - Simplicity – provides time/energy for other “teams”

intentional Christian communities

applications to research in Calvin context

- Pace of research
 - Commitment
 - Mentorship – growth-centered, scaffolded
 - Body of Christ model (shared efforts based upon capacity)
- Funding
 - Shared resources
- Burnout (work-life balance)
 - Work/rest cycles (Sabbath) and celebration
 - Shared rituals and practices
 - Body of Christ model of working together
 - Simplicity – provides time and energy for other priorities

science in community

a demonstration plot of the Kingdom

Intentional communities are local experiments that serve as
“demonstration plots of the kingdom”

Clarence Jordan, Founder; Koinonia Partners

- Not because they get everything right!
- Because they demonstrate to the world what the way of Jesus looks like.

Do we have an opportunity to look at the way we practice science with new insights? To be a demonstration plot of the Kingdom?

purpose statement

rare disease collaboration

Our calling is to be a community of scientists whose scholarship prioritizes Christian values in pursuit of authentic community, member well-being, and scientific excellence.



our vision

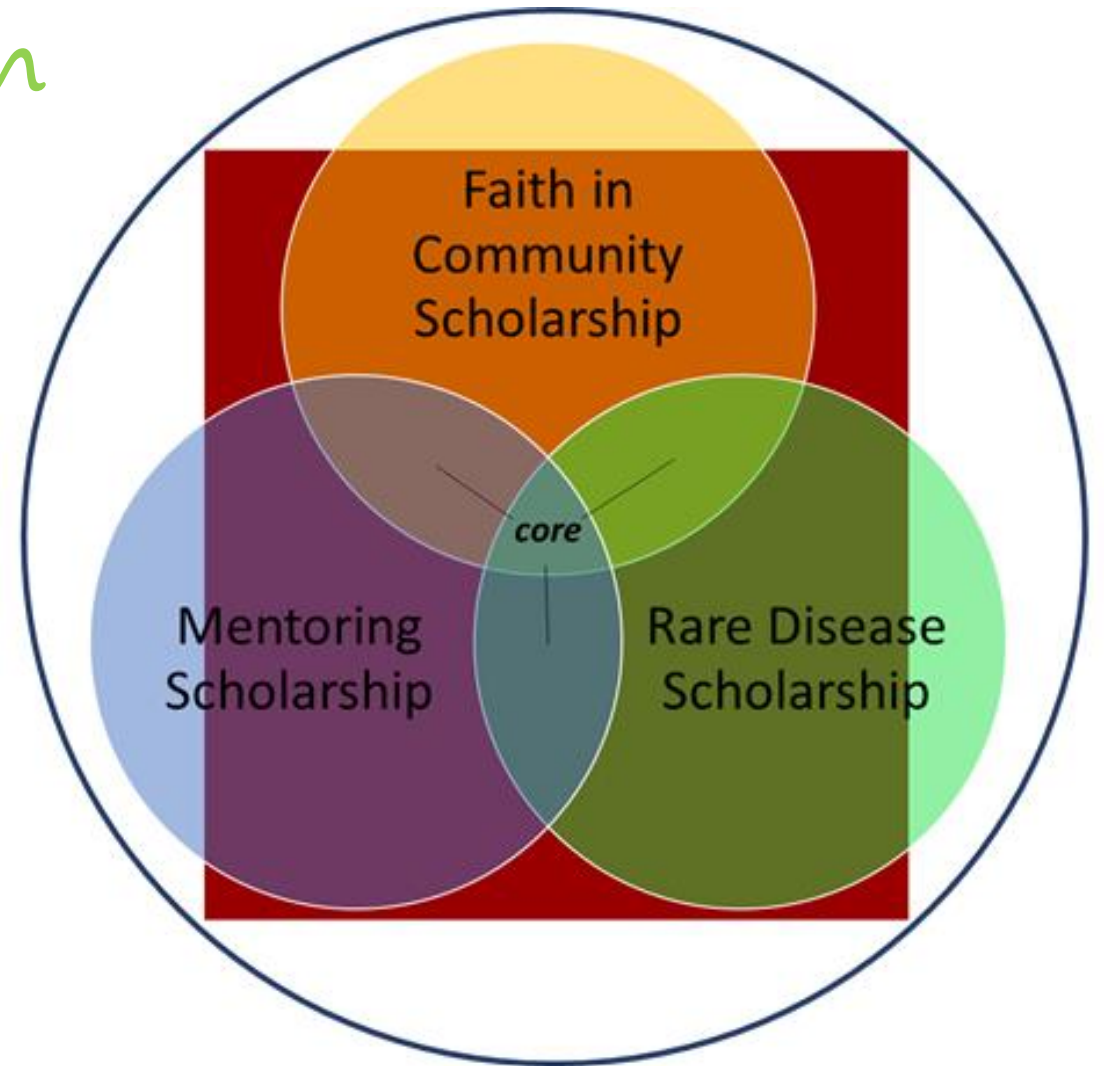
rare disease collaboration

We believe that being at Calvin provides up with the unique opportunity to explore how our *faith* could change the way we think about *doing science*. We wish to explore how a community of Christian scientists, both faculty and students, can effectively manage group responsibilities to promote *individual flourishing* as well as *community goals*. We intend to pursue practices informed by other intentional communities such as shared community vision, purposeful membership, and shared daily (research) life.

our project

rare disease collaboration

- College mission fit; world's greatest need (a place where greater efforts are needed), our greatest joy
- Value for understanding common diseases
- Less competition in this field; better pace for our context
- Funding models, perhaps better-suited to our context



acknowledgements *and resources*

- Intentional Community Members: David Janzen, Greg Clark, Brandon Wencher, John Schwiebert, Linda Naranjo-Huebl, Huw Lewis
- Calvin Center for Christian Scholarship (CCCS) grant, Susan Felch
- National Research Council (2015), "Enhancing the Effectiveness of Team Science"
- David Janzen (2013), "The Intentional Christian Community Handbook"

discussion and questions

Is this model broadly applicable/useful for research at Calvin College or other Christian colleges?



What does science look like in the New Creation?