

The Science of Mentoring

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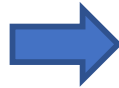
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MSRI/SLMath

At its best, mentoring can be a life-altering relationship that inspires mutual growth, learning, and development. Its effects can be remarkable, profound, and enduring; mentoring relationships have the capacity to transform individuals, groups, organizations, and communities. (Ragins & Kram, 2007)

Starting principles

Mentorship is a professional, working alliance in which individuals work together over time to support the personal and professional growth, development, and success of the relational partners through the provision of career and psychosocial support.



In other words, mentoring is an interpersonal relationship (not an activity or a program).

The Science of Effective Mentorship in STEMM, National Academies of Science, Engineering, and Medicine nationalacademies.org/mentoring

Outcomes of **Effective** mentoring include:

- increased persistence (courses, curricula, degrees, careers)
- higher career satisfaction;
- Identity, belonging, self-efficacy
- enhanced engagement of URM;
- improved research productivity

Becoming a participant in a Community of Practice

Apprentices learn as they **engage** in **authentic tasks** through **interactions** with more skilled members of the community.

Apprentices begin by participating at the periphery of practice and move to more central participation as their skills grow.

Learning isn't all-or-nothing. It's an ongoing, iterative process.

Three dimensions of an apprentice's learning:

1. Learning the craft (***mathematical content***)
2. Learning to act the part of craftspeople (***mathematical practices***)
3. Develop a sense that they are important and active participants in the craft (***mathematical identity***)

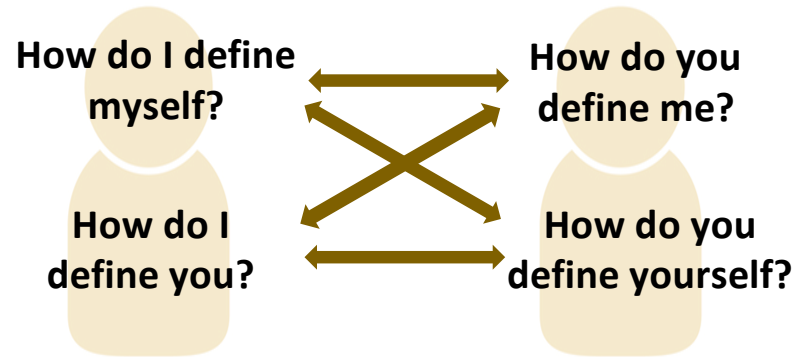


Identity: Mentoring for Equity

Identity is how a person defines themselves

Might include their experiences, needs, interests, values, abilities, aspirations, beliefs, gender, culture

But we also assign identities to others.



Identity is not static. It changes in time and in space.

Different people never have the same identity, though there may be some intersections.

Identity matters in any interpersonal relationship. Ignore it at your own risk!

Identity: Mentoring for Equity

Identity is how an individual defines themselves.

There is also the perceived identity that others ascribe to them.

Research has revealed the minimal interactions between students and faculty in some graduate programs.

- Faculty do not want to engage with students until they pass qualifying exams.
- But apprenticeship model indicates that interactions are critical to develop competence.

Are students engaged in authentic mathematical tasks?

From Pamela:

Define identity,

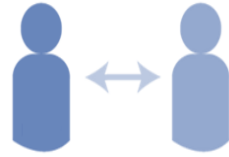
Define cultural relevant pedagogy

Have them think how their identities have affected their mentoring experiences.

The main idea should be how identity affects mentoring relationships. People should know that identity matters when mentoring

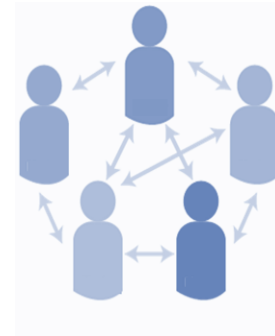
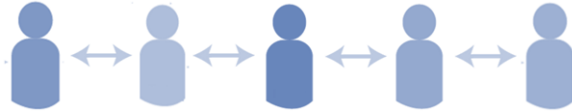
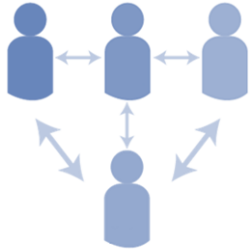


Mentoring as a path to identity, inclusion, and belonging.



Mentoring can be a 1-1 relationship

. . . as a special case of a mentoring network.



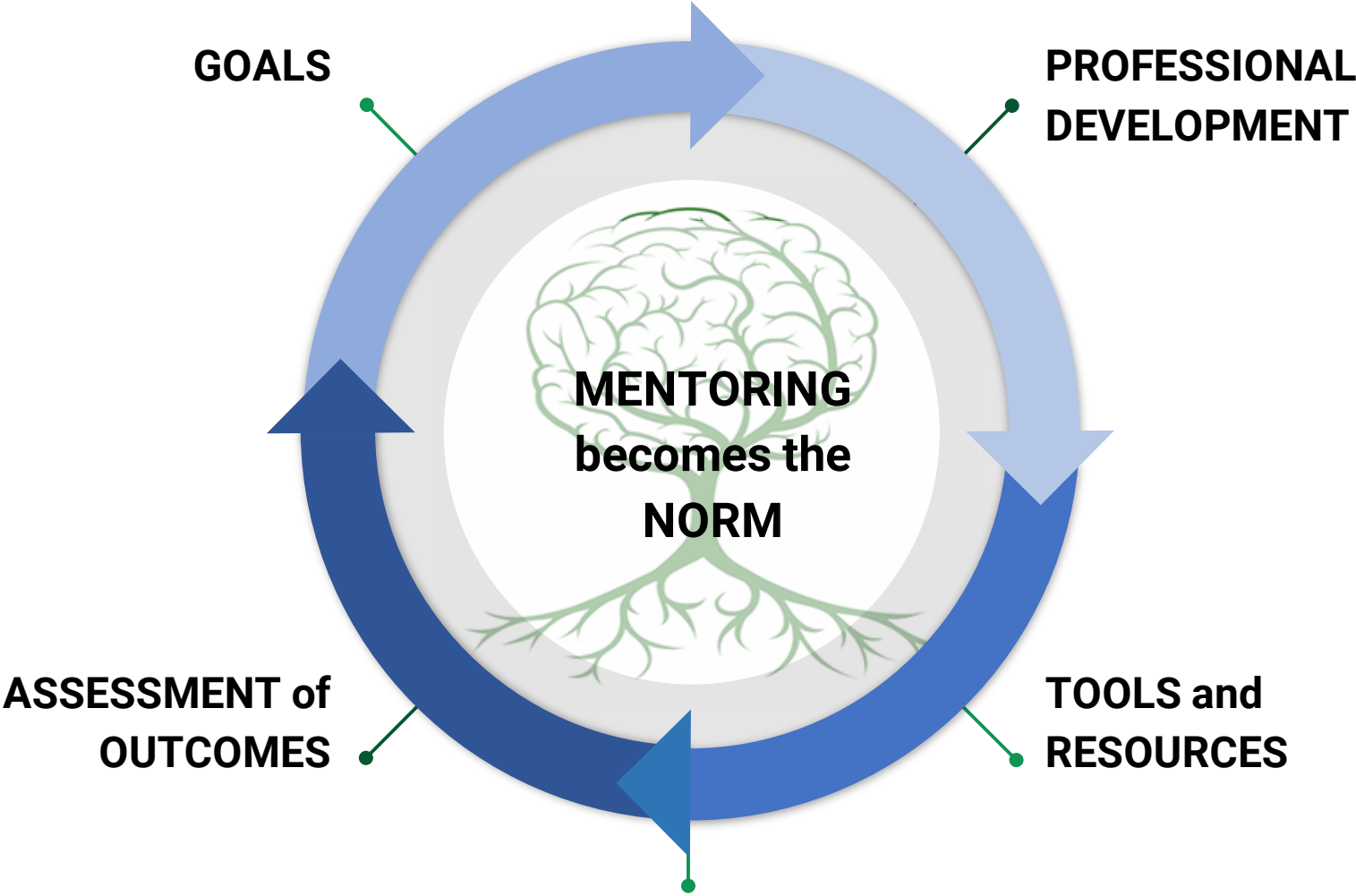
Including:

- Vertical
- Horizontal
- Multi-stage

Intentional vs. happenstance

This view makes “master” and “apprentice” context-specific labels.

Mentoring is a Learned Skill: Growth Mindset



Reflection Questions

- How does your identity affect your mentoring experiences?
- What is the influence of power differences in mentoring?
- What can you do as a mentor to support the development of a (mathematical) (professional) identity in your mentees?
- What can your department do to be recognized for its effective mentoring?
- How can you move toward mentoring for knowledge, practices, and identity?

Thank you