



LESSONS LEARNED BY NAVIGATING THE FULL CIRCLE OF LEARNING ENVIRONMENTS

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Physics

Start with
goals
Keep
content
Find ways
to see what
they see
Assess more
effectively

A new learning space = empty room,
basic furniture = goals for the course and content
What will make it a great space for learning, teaching, growing?

What
goes
where?
What do
I skip?
How can I
pull it all
together?

What I learned at a conference
What I read somewhere once
What we talked about in the hall
What I tried but failed to get to work

LARGE LECTURE TO DISTANCE CLASS

Furniture in the lecture room

Natural science goals for
Mason students

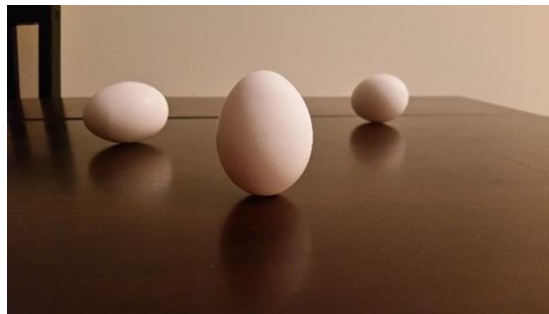
Most content

Quizzes and tests

~~Long lectures~~

~~Anonymity~~

~~50% absent most days~~



What's new

Discussions

At-home experiments

Formative questions

Personal introductions and pictures

Journals

More opportunity to see into their
thinking and misconceptions

DISTANCE TO ACTIVE LEARNING

What moved into the
“Ferrari” room

Natural science goals

Astronomy content

Quizzes

Tests



What was new

Group work

Discussions became Think pair share

At-home became mini-labs

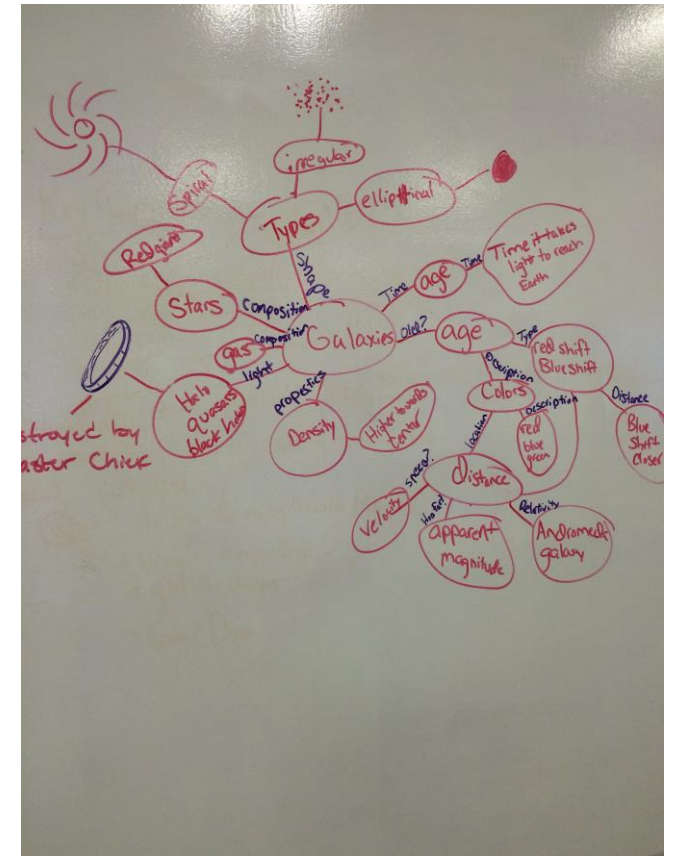
Journals

Group projects

Portfolios

Mind maps

Whiteboard drawings



ALC TO ENTERPRISE 178

What stays

Goals for natural science at Mason!

Astronomy content

Lecture tutorial

Think pair share

reflective writing

portfolio

projects

concept maps

solar system drawings

Mini-activities

What was left behind

White boards

Multiple computer displays

Formalized group work

Most mini-activities



WHAT ALL THESE SPACES TAUGHT ME — THE “KEEPERS!”

Keep the focus on the goals! Content too!

More emphasis on the visual

Hands-on activities

Think Pair Share

lecture tutorials

Concept mapping

Connecting learning in this course to their passions

What room comes next?



<http://apod.nasa.gov/apod/ap160811.html> photo by Goren Strand

EMPOWERING THE RIP SAW



<https://en.wikipedia.org/wiki/File:Whipsaw2-1898.jpg>



<http://www.loc.gov/pictures/item/pa0255.photos.131909p/resource>

REENGINEERING THE RIP SAW



https://i.ytimg.com/vi/9_wdRkxT7GI/maxresdefault.jpg



Arborist.com

INNOVATION PRINCIPLES

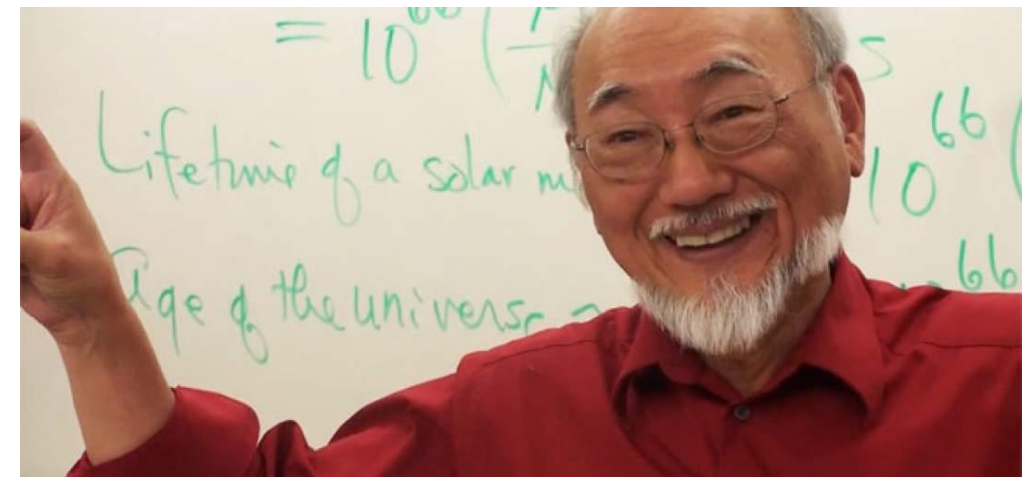
- ❖ It takes trust, courage, and action to be innovative
- ❖ It is hard work but love of learning and respect for students can be motivators
- ❖ Hope for the future can lead to perseverance.



MACALESTER
COLLEGE



Sung Kyu Kim
Contemporary Concepts of Physics
10,000 students



NEW ENVIRONMENTS AND NEW TECHNIQUES

- ❖ Experience in the traditional classroom
 - Our norm: read, think, lecture, discuss, write
- ❖ Distance learning can include all of these and more



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GOING FULL CIRCLE

- ❖ Returning to the traditional classroom
 - Apply the flipped-classroom concept
 - Augment the learning with on-line resources
 - Surprise the students with variety in learning activities
- ❖ There are risks and rewards
 - Evaluations tended to have higher standard deviations
 - There can be consistency in learning and performance
 - Most stakeholders will be more motivated.



SAMPLE TECHNIQUES

- ❖ Each one, teach one
 - Students select from topics and take responsibility
 - Everybody learns something and focus is on applying
 - Supplement learning where needed
- ❖ Creating metaphors out of whole cloth
 - Each student gets two 1-foot square pieces of fabric
 - Create a metaphor for conflict in any way desired
 - Tell the story of the metaphor



METAPHORS ABOUT THE MIDDLE EAST



Competition in space
Posted by Yusif Babanli

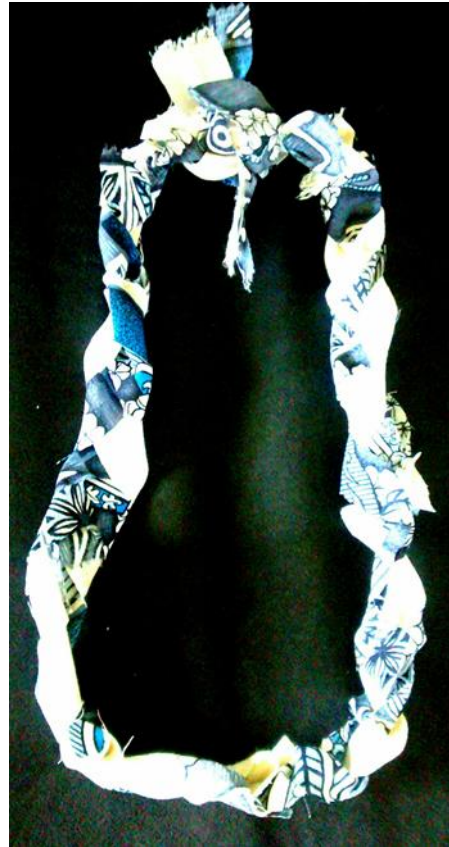


visual representation of conflict theory
Posted by Dale Vergott

CONFLICT AND CULTURE METAPHORS



Narrative Theory Metaphor
Posted by Claire Nichting



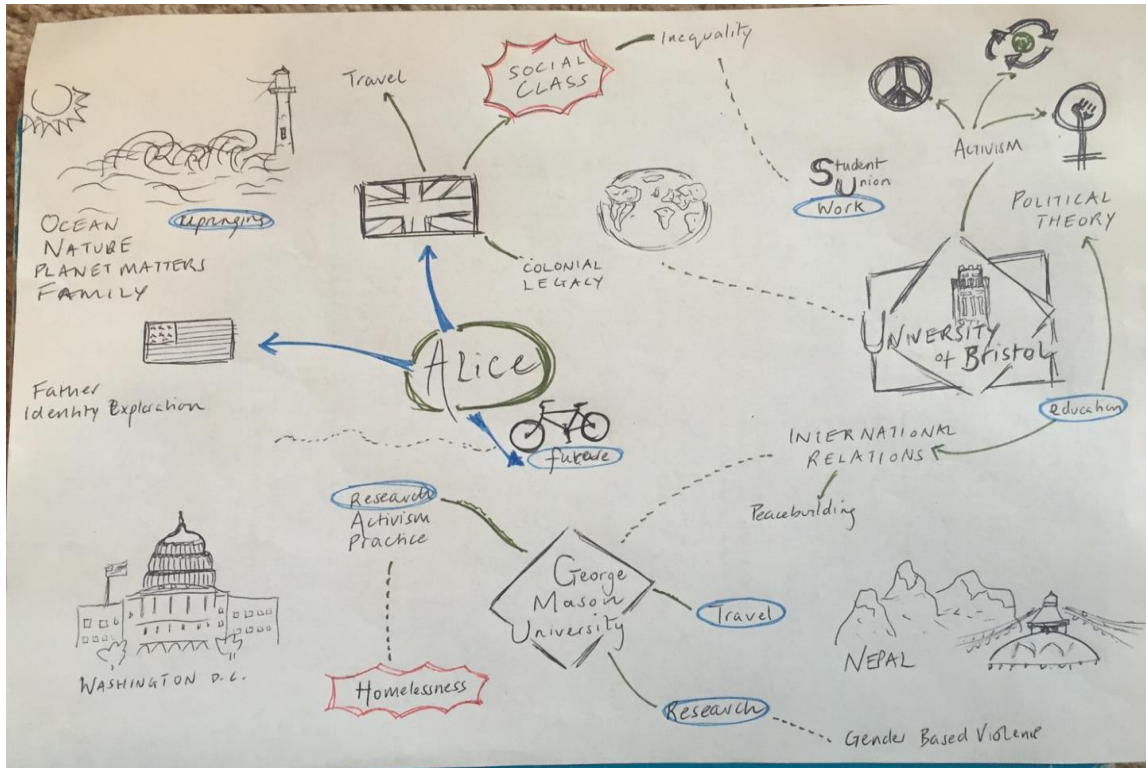
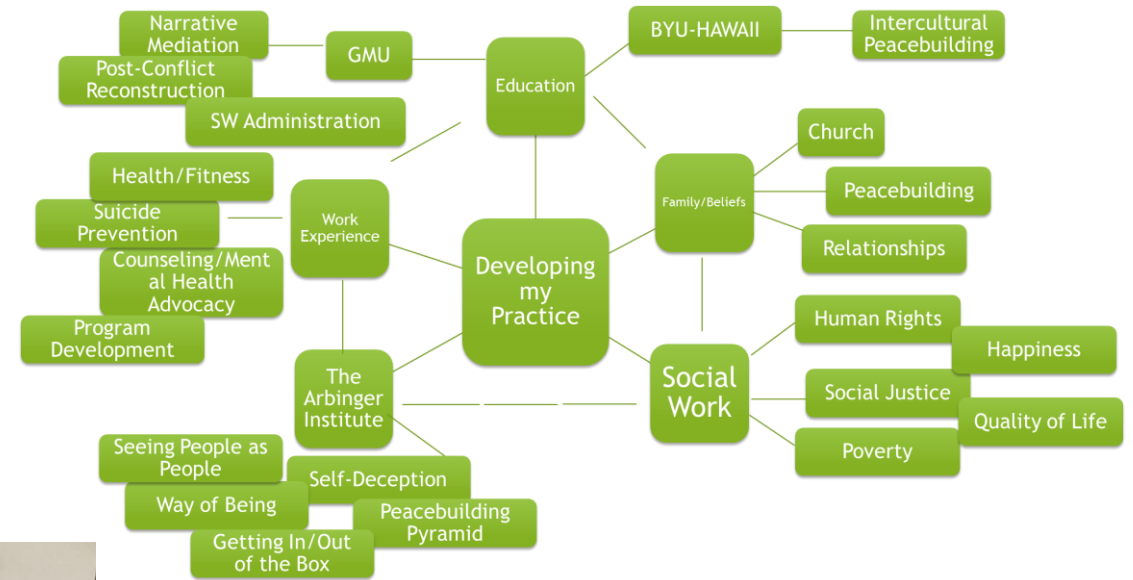
He Lei Hakakā
Posted by Joshua Mahuna



Heather Payne Fabric Metaphor

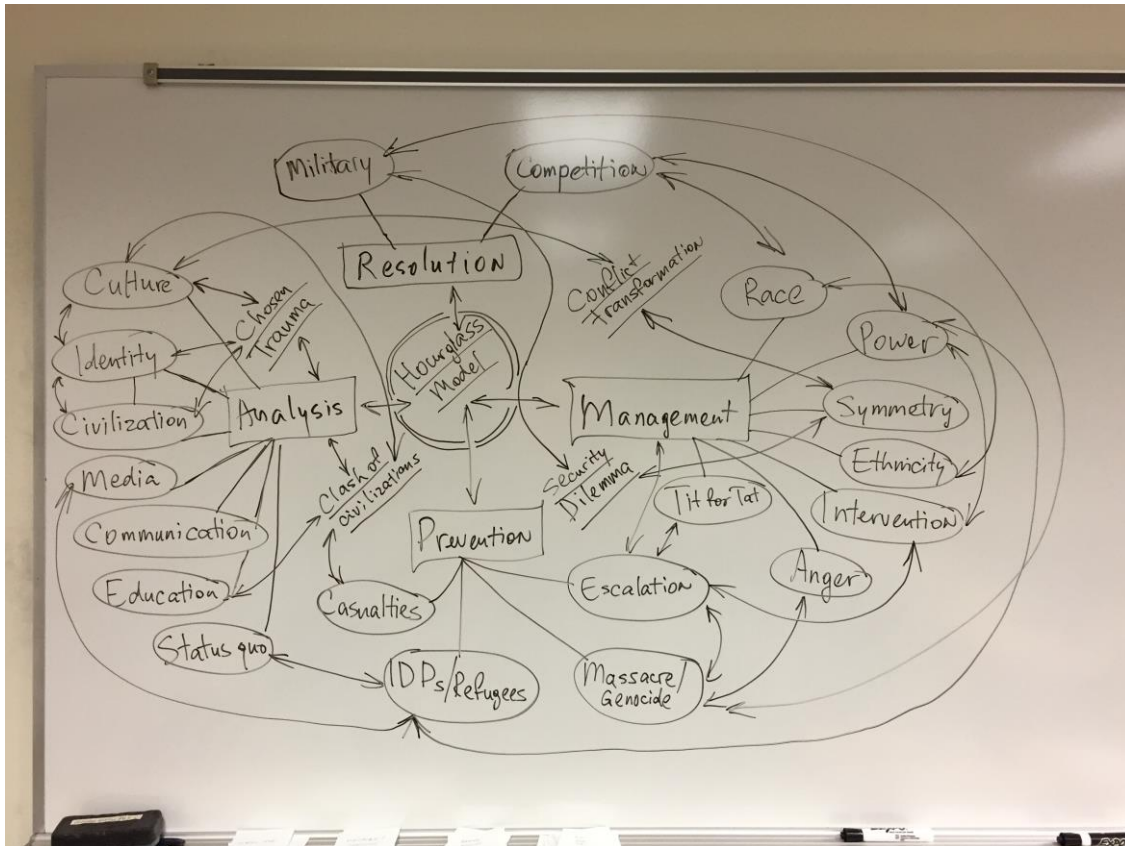
MIND MAPS — ORGANIZING IDEAS

What is my practice?
- Rachelle Thompson

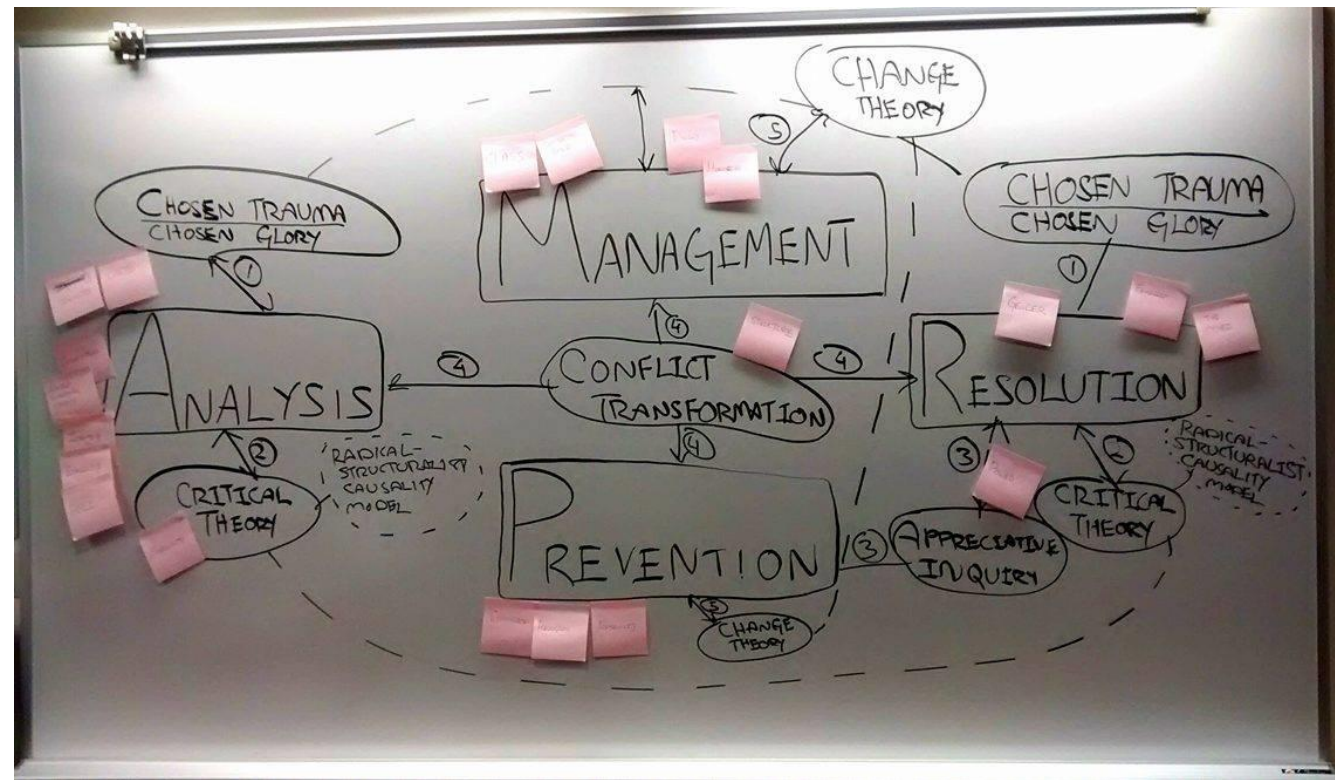


How did I get here?
- Alice Peck

CONCEPT MAPS



Yusif Babanli



Joshua Mahuna

EXPERIENCED STUDENT CREATION



Heather Payne's Mind Map

WHAT WILL YOU PUT IN YOUR TEACHING SPACE?

Take a wad of playdough

Shape a metaphor for something you have tried in teaching that works and you want to keep

Or

Shape something that symbolizes something you really want to try



Livingwell.com

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Full Circle Principle:

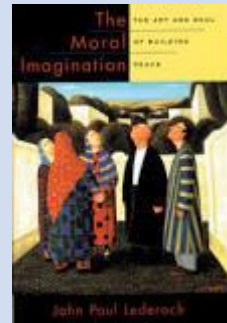
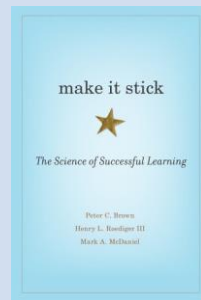
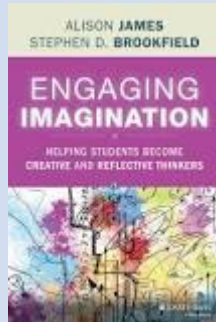
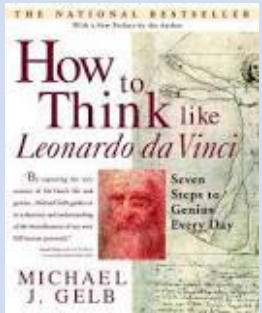
- The learning objectives and results are consistent.
- Traditional or enhanced classroom and distance learning techniques focus on student involvement.
- Distance learning and active classrooms provide additional opportunities that are transferable.
- Techniques practiced in distance and active learning contexts can be brought back to the traditional classroom.

Assumptions:

- Students learn by doing and thinking independently.
- Multiple teaching techniques enhance learning.
- Applying theory leads to understanding.
- Interleaving information improves retention.
- Creativity enhances thought processes.
- Students learn from each other and outside sources.
- Innovative ideas may not work on the first attempt.

Tools and Processes:

- Mapping - Fabric Metaphor – Retention - Aesthetics



References:

- Mapping - **How to Think Like Leonardo da Vinci: Seven Steps to Genius Every Day** by [Michael J. Gelb](#)
- Fabric Metaphor - **Engaging Imagination: Helping Students Become Creative and Reflective Thinkers 1st Edition** by [Alison James](#), [Stephen D. Brookfield](#)
- Retention - **Make It Stick: The Science of Successful Learning 1st Edition** by [Peter C. Brown](#), [Henry L. Roediger III](#), [Mark A. McDaniel](#)
- Aesthetics - **The Moral Imagination: The Art and Soul of Building Peace 1st Edition** by [John Paul Lederach](#)