

STEM



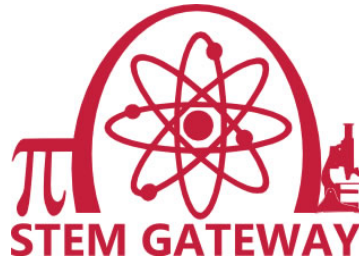
How Artistic Mentoring Practices Reinforce Developmental STEM Relationships

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SCIENTIST OR DANCER?

- 1) We must have perseverance and above all confidence in ourselves.
- 2) We learn by practice.
- 3) Intelligence is the ability to adapt to change.
- 4) If you can't make it good, at least make it look good.
- 5) Everyone should consider his body as a priceless gift.
- 6) Creativity is intelligence having fun.
- 7) The only sin is mediocrity.





The University of New Mexico STEM Gateway program seeks to increase the number of Hispanic and other low-income students attaining STEM degrees.

STEM Gateway initiatives focus resources on undergraduate science and math courses that serve as gateways to STEM degrees, and that traditionally have had low success rates.

The STEM Gateway program is funded through a U.S. Department of Education TITLE V grant, 2011-2016 (total anticipated funding \$3.82 million).



STEM GATEWAY INITIATIVES INCLUDE:

- Gateway Science and Math Course Reform
- STEM Student Interest Groups/STEM Academies
- Data-driven Prioritization
- Peer Learning Facilitators



WHO ARE THE PLFs?

- 44 undergraduates
 - (Seniors: 26, Juniors: 10, Sophomores: 8)
 - 28 are solid STEM
 - Chemistry, Biology, various Engineering, Mathematics
 - 9 are ... kind of... STEM (or, not STEM by DOE def's)
 - Secondary Ed in Math and Science, Nursing, Pre-Med
 - 7 are not STEM
 - Art History, Public Communication, Business Administration
- Academically qualified, recommended by faculty



WHAT IS IT LIKE TO BE A PLF?

- 10 – 13 hours each week:
 - 3 hours spent in class
 - 2-3 hours prepping for class
 - 3-5 office hours helping students
 - 1 hour for weekly meetings with the professor
 - 1 hour for weekly professional development training
- This is a very independent student job.
- Report to me (staff) and their instructor (faculty)



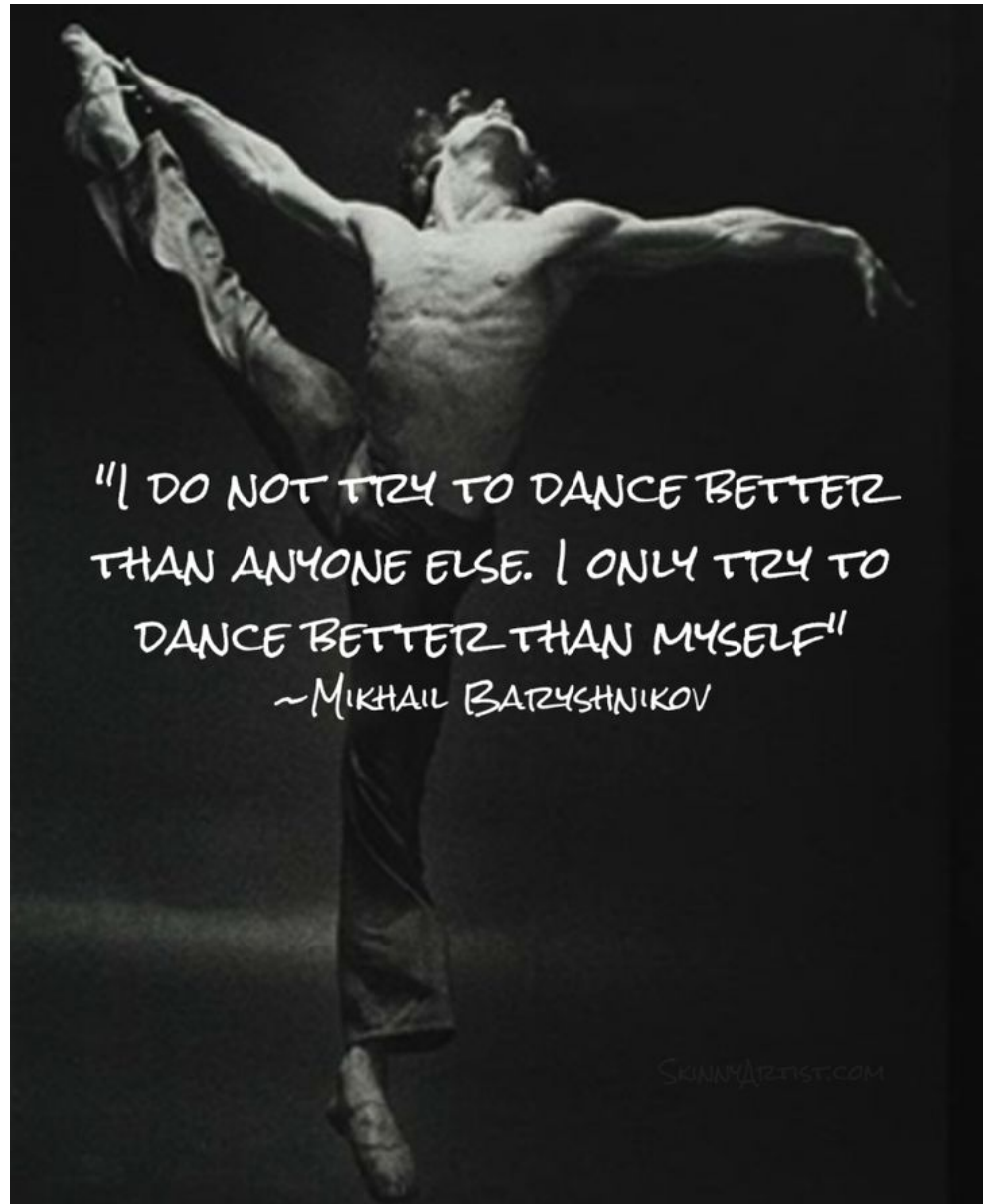
MY ESSENTIAL CHALLENGE

I have worked in academic support, higher ed research, and student affairs departments for about 8 years.

But my academic work (I felt) separated me from the PLFs.

How could I possibly hope to mentor these students who were doing such different things than I did?





"I DO NOT TRY TO DANCE BETTER
THAN ANYONE ELSE. I ONLY TRY TO
DANCE BETTER THAN MYSELF"
~MIKHAIL BARYSHNIKOV

SoulArts.com



WHAT DANCING TAUGHT ME (SOUND FAMILIAR???)

- The meaning of practice.
- Self-care above all else.
- Creating and achieving measurable goals.
- Cramming doesn't work.
- Giving and receiving feedback.
- The importance of joy.



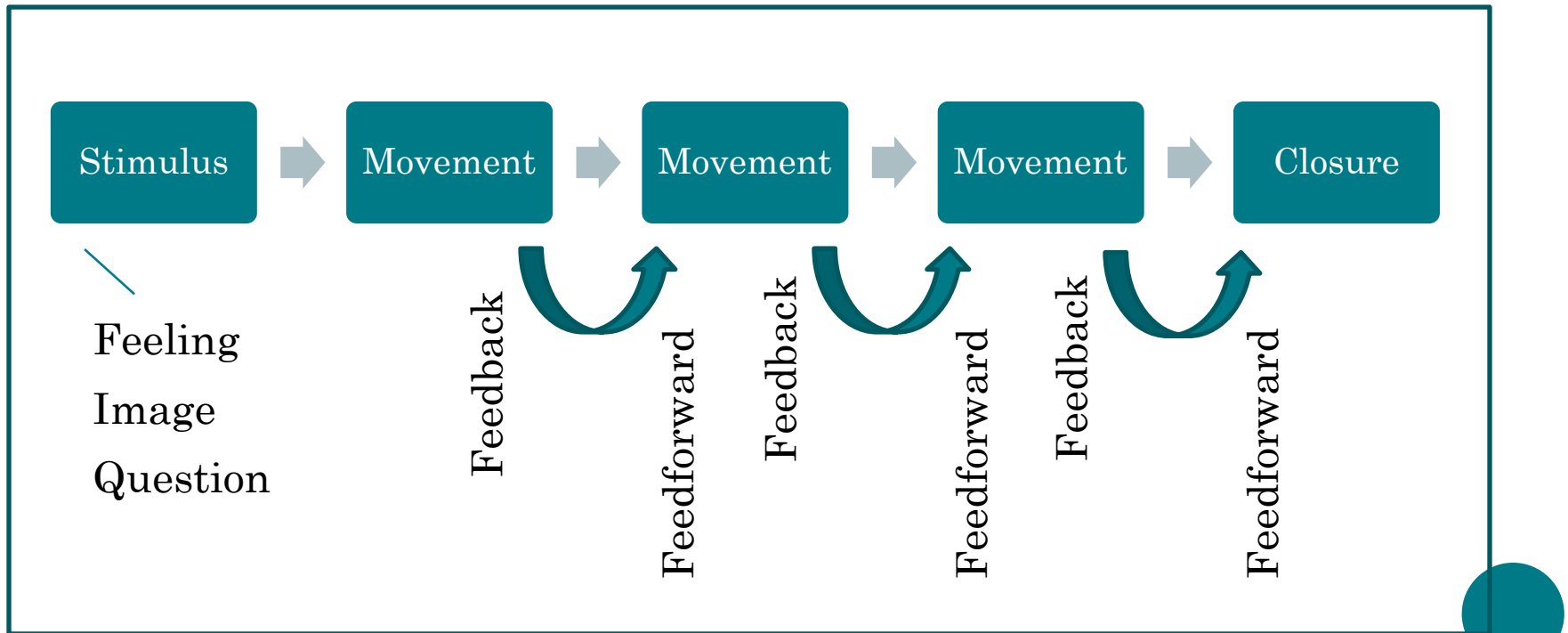
DANCE AND STEM – BEYOND ATHLETICISM

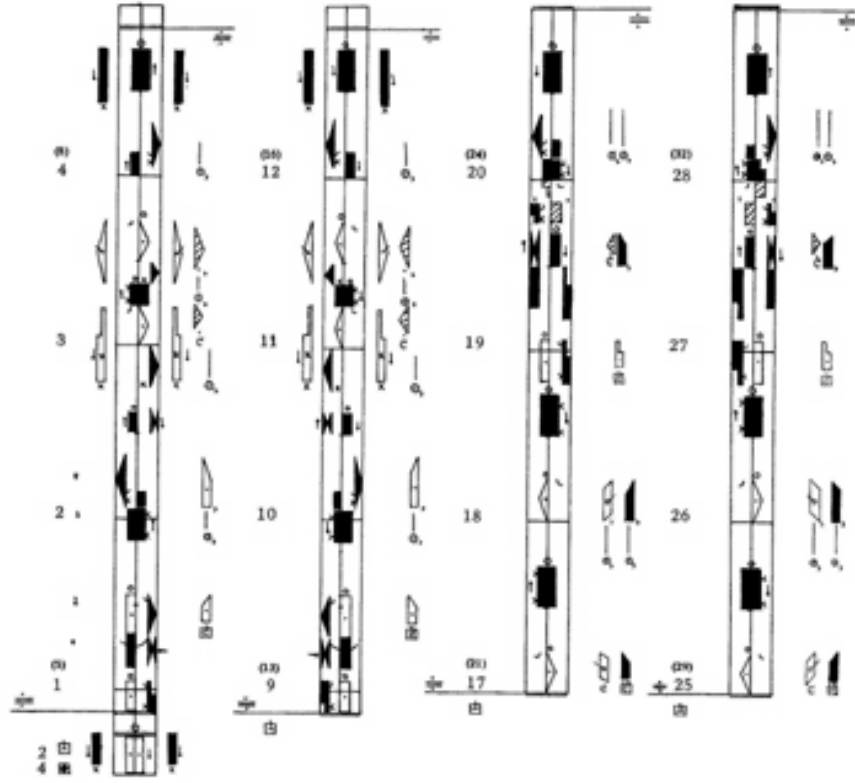
- Dance is an exploratory, hypothetical, creative inquiry into the human body and its expression.
- Dance is sensory.
- Dance creation is based on observation and inquiry.
 - What characteristics do the items and people around us possess?
- The choreographic process is almost identical to the scientific method.
- People fear them.



ALMA HAWKINS'S CREATIVE PROCESS

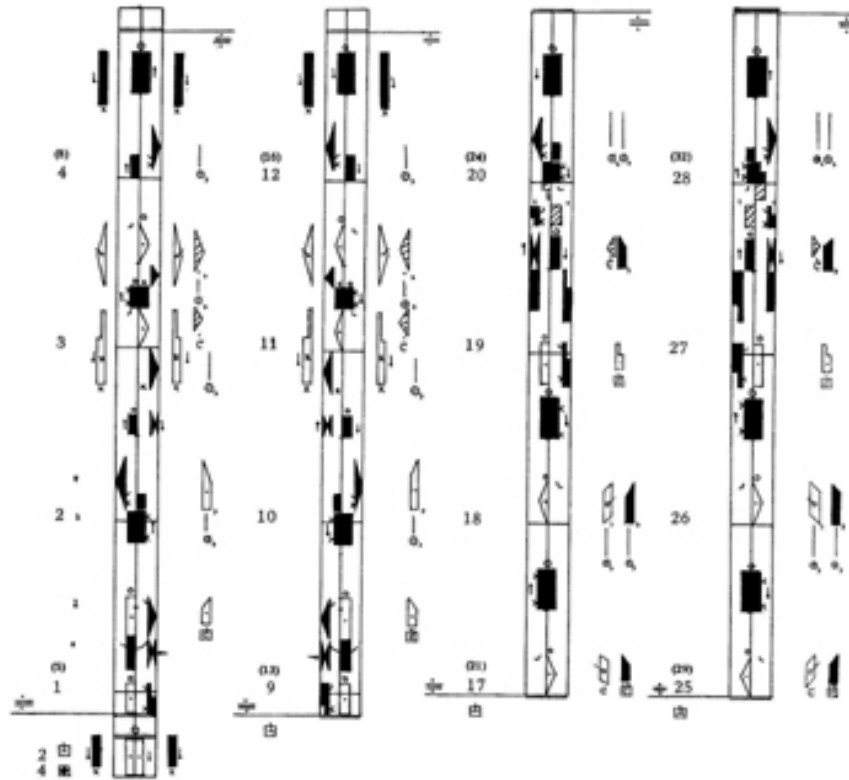
Adapted from Minton, "Parallels Between Alma Hawkins' Approach to the Creative Process and Contemporary Learning Theory." Journal of Dance Education. 3.2. 2003.





MONDAY'S CLASS

No. 4 Tendu



Labanotation from Bournonville's Monday Class, Tendu
Photo courtesy Lois Rathvon



BACK TO MY STUDENTS. LAST YEAR...

- (re)Defining Success
- Trust Their Judgment
- Let Them Go



LAST YEAR...

- (re)Defining Success
 - Motivation and Individuality
- Trust Their Judgment
 - Embodiment and Active Learning
- Let Them Go
 - Building Their Own Community



MOTIVATION AND INDIVIDUALITY

○ Concepts:

- Who are they?
- Why are they here?
- What do they perceive to be their strengths and weaknesses?
- What are their goals?

○ Application:

- Interview at beginning and mid-point of the semester
- Pair and place them strategically
- Frequent anonymous evaluations of trainings
- Extensive discussions on grad/professional school
- Frequent one-on-one meetings



EMBODIMENT AND ACTIVE LEARNING

○ Concepts:

- Members of the Active Learning community
- Representatives of flipped classroom
- Observation → Implementation
- Working in a safe space for experimentation

○ Application:

- Brainstorming activities based on real problems
- Improvisation and role-playing games
- Practice, practice, practice
- Formal and informal feedback



BUILDING THEIR OWN COMMUNITY

○ Concepts:

- Give them a stake
- Rely on each other
- They don't work alone

○ Application:

- Self-driven training exercises and guest speakers
- Using the grant's External Evaluator visit
- Informal mentors
- Recruit from their ranks
- Review data together



IS IT WORKING?

- Here's what I know:
 - They come back.
 - They recommend the job to others.
 - They keep in touch.
 - They seem happy.
- Ultimately, we are looking at the data for the program now.



MORE INFORMATION:

- stemgateway.unm.edu

- Dance Pedagogy and Mentoring

- Angier, D.C. “Using Your Strength to Teach a Dance History Course.” *Journal of Dance Education*. 7.3. 2007.
- Minton, S. “Parallels Between Alma Hawkins’ Approach to the Creative Process and Contemporary Learning Theory.” *Journal of Dance Education*. 3.2. 2003.
- Warburton, E.C. “Who Cares? Teaching and Learning Care in Dance.” *Journal of Dance Education*. 4.3. 2004.



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