

Math in Motion

A Reflection

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I chose to redesign a math unit using the arts. As I challenged myself with this project, I increasingly became anxious. I began reading all the resources provided. I searched the internet and came across a math and dance lesson from New Zealand. While reading this lesson plan, my brain began to devise strategies to combine content literacy with disciplinary literacy using the four Es from Moje. Engage, Engineer, Examine, Evaluating. I appreciate the four Es because I feel as though I utilize them even if I didn't realize it until this class throughout all Alternative Education learning opportunities.

Math in Motion's critical component is for students to exercise their imagination, problem-solve, and make decisions by exploring movement based on corners, quarter turns, and right angles. Students will select, rehearse, recall, and perform movement and reflect on their learning and performance throughout the process. This lesson's essential vocabulary is all the shapes (i.e., circle, square). We explore locomotor movement, quarter turn, half turn, still shapes, floor pathway, clockwise, and counterclockwise. I also decided to relate more math terms, including money, time, and fractions. They are connecting these terms with visuals to assist students with the world around them. This decision was influenced by Moje's "Making the translations and other keys to communicating knowledge visible can provide access to understanding and thus humanize the work by making it clear that it is not the product of innate talent but, rather, a learned reading and representational practice." (Moje 2015)

I asked a student I work with to assist me with a video for a part of this project and asking for her prior knowledge of clockwise and counterclockwise, and right angles.

This lesson's learning goals offer students the opportunity to demonstrate their learning by physically using their bodies to make angular shapes and turning (changing directions). It also allows them to work collaboratively with their peers to perform exciting moving and still right-angle shapes.

It also expands their vocabulary in math and dance.

To gain different perspective, I shared this lesson with teachers and was pleasantly surprised and what I learned. Many teachers found this lesson to be exciting and smart. They liked how it allowed students to learn in groups, provided movement, and taught various math vocabulary for different units.

I appreciate this lesson because it is very much hands-on learning, which often reaches all students in the classroom quickly. For example, students who may not understand the vocabulary by reading may catch on faster by performing movements related to the language. "multimodal forms are critical for fostering disciplinary literacy skills because they are part and parcel of actual disciplinary practices." (Moje 2015)

I believe this redesigned lesson offers students the opportunity to think, write, and speak like mathematicians and artists. Examples from both content areas that overlap in Math in Motion allow students to synthesize knowledge and personal experience, utilizes representation, ask questions, problem-solves, plans and explains their process, understand specialized vocabulary, evaluates, recalls, revises, and reflects.

What I wanted to do and ran out of time was actually to create a video of students performing Math in Motion. Doing this would have allowed me to see it in action and work with the students to revise the lesson by adding more vocabulary terms from dance and math and possibly specialize it more per grade level. What I currently see in school at this time is that students are completing math on paper only, which means that math at this time in classrooms does not build learning related to the math needed in the real world. Students are not working together, problem-solving, finding math strategies, and there does not appear to be a teaching understanding for students of why math is essential. There isn't a real world connection for learning math at all at the elementary school level, and I fear at any level presently. After all, "Without the question or problem to study, the work is virtually meaningless. And without meaning, there is little reason for the learner to be motivated to engage in what amounts to literacy drill-and-practice." (Moje 2015)

This class has been so enlightening, and I have appreciated reading all sources. I also enjoyed reading from Phase 2: Framing Disciplinary Literacy. Students need to go beyond just learning how to add numbers or objects and draw illustrations that represent addition. they need to explain their thinking and make connections from the content of the real world around them by asking essential questions that encourage relationships and make the content personally relevant. (Colwell, J, Hutchison, A, Woodward, L, 2020)

This class has enlightened me on rethinking lesson plans in the future and on ensuring that I seek to apply opportunities for students to Engage, Engineer, Examine, and Evaluate through their learning as well as make connections to the real world.

References

Cadzow, Julie, Dance Educator, Ministry of Education, retrieved from

[Activity 3: Moving Maths / Dance Across the Curriculum / Units and sequences / Primary teaching resources / Teaching and Learning / Home](#)

Appendix B, Disciplinary Literacy in Math, Disciplinary Literacy in Action and Appendix E,

Disciplinary Literacy in Art, Disciplinary Literacy in Action

retrieved from resources.corwin.com/lent-voigtDLinAction

Rainey, E. C., Maher, B.L. Coupland, D., Franchi, R, Moje, E. B., 2017, Journal of Adolescence & Adult Literacy, Vol. 61:4, 371-379, International Literacy Association

Moje, Elizabeth Birr, 2015 Doing and Teaching Disciplinary Literacy with Adolescent Learners:

A Social and Cultural Enterprise

Colwell, J, Hutchison, A, Woodward, L, (2020) Practical Approaches to Digitally Supported
Disciplinary Literacy in Mathematics, Digitally Supported Disciplinary Literacy for Diverse K5
Classrooms