Game-based, Project-based, Problem-based, & Experiential Learning: A Classroom Perspective

Niall McFadyen-2025

Who am I?

- Currently high school teacher at the Exchange Met School (Grade 9) Previously 9-12
- Middle Years Homeroom Teacher
- Middle Years Technology and Multimedia Teacher
- Have taught all core subjects, physical education, basic French, guitar, and more
- Hockey Coach
- Gamer
- Parent
- B.A. (Film), B.Ed (Middle Years), P.B.D.E, M.Ed (Educational Technology and Design)

www.niallmcfadyen.ca

lnmedialab.blogspot.ca

Why am I doing this presentation?

In my experience:

- Teachers who use non-traditional approaches can face obstacles and challenges.
- There is a need to broaden instructional practices.
- Projects, games, experiences, and problems are part of life.
- Other forms of education use these approaches: Universities, Sports, Military.
- Connection to modern curriculum.
- Through my experiences I believe that I have something to share that can be useful to others.
- Games, projects, and experiential learning can have low bars to entry and can be inclusive

My Experiences in School

The Catapult Project
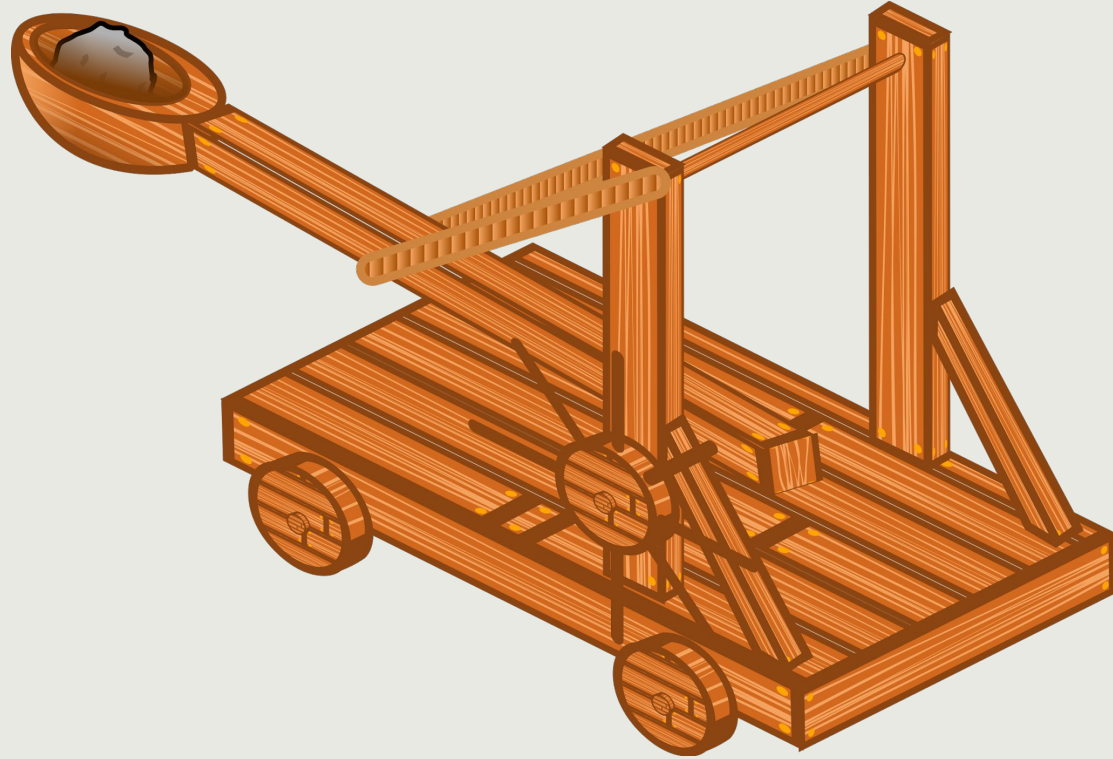
Flesh Eating Disease
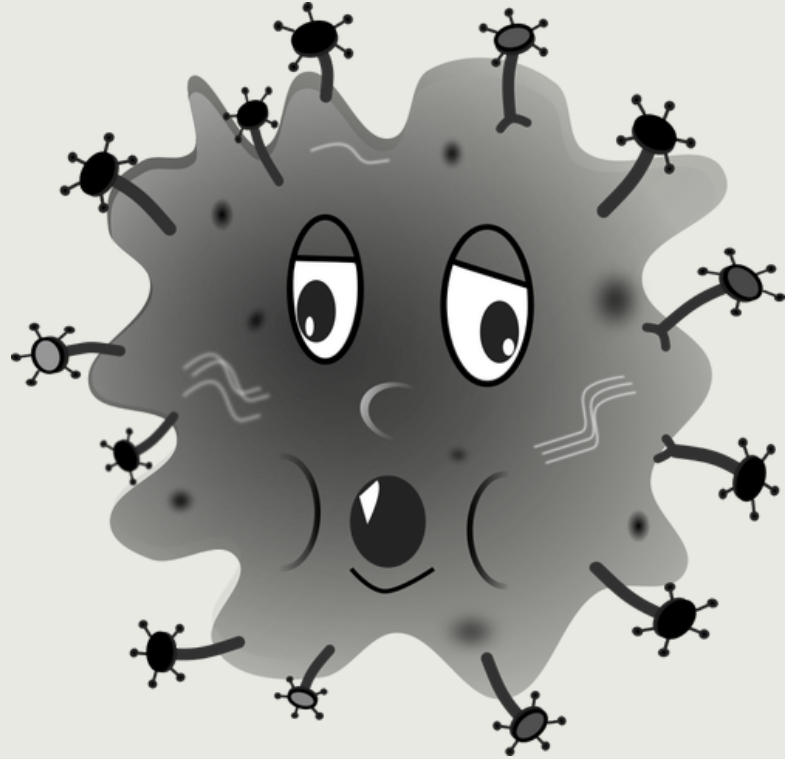
Really Bad Short Film

Visit to Stony Mountain-University Field Trip

Traditional Classrooms

- Teacher led

- Not a lot of engagement

- Worksheets

- Direct Instruction

- Banking Model-Friere

- Traditional assessment

Suggestions to Explore

- Using games in instructional time

- Ongoing projects based on student interest but guided by the teacher.

- Interactive field trips or experiential learning opportunities.

- Collaborative problem solving

- Assessing not evaluating

Rational and Ideas

- Implementation strategies are key
- Be progressive
- Global competencies
- Allow different approaches to get to the same outcome
- More inclusive activities
- Have some fun
- Go deeper with projects
- Change things up and break the norms
- Bring in student interests
- Get out of the classroom
- Change the roles in the classroom

Possible Challenges

- Lack of understanding by stakeholders

- Be confident breaking from norms and traditions. This can take experience and confidence

- Need to backup your practice with research and theory

- Challenges that new teachers face

- Perceptions of colleagues

- Funding

- Time

- Supplies

My Context

- A lot more flexible than most

- Teaching core subjects and electives

- Project-Based Model for over 15 years.

- Four period school day: 1 project period, 1 teacher led workshop, 1 PE, 1 Math

- Understanding that contexts differ throughout the province.

Exchange Met School:

https://www.7oaks.org/exchangemet

Considerations for Implementation

Dinardo and Broussard (2019) "best practices"

● Know the game how to teach it.

● Help students understand why they play the games in class.

● Plan in advance for the resources that are needed such as time, knowledge, and money.

Hays (2005), and Hays and Hayse (2017) make recommendations that include:

● Learners should be provided with debriefing and feedback that clearly explain how their experiences tie into learning objectives.

Notable Research and Theory

Berland, M., & Lee, V. R. (2011). Collaborative strategic board games as a site for distributed computational thinking. *International Journal of Game-Based Learning (IJGBL)*, *1*(2), 65-81.

Cook, M., Gremo, M., & Morgan, R. (2017). Playing Around with Literature: Tabletop Role-Playing Games in Middle Grades ELA. *Voices From the Middle, 25*(2), 62-69.

deHaan, J. (2019). Teaching language and literacy with games: What? How? Why? *Ludic Language Pedagogy* (1), 1-57.

DiNardo, C. O., & Snyder Broussard, M. J. (2019). Commercial tabletop games to teach information literacy. Reference Services Review, 47(2), 106-117.

Hays, L., & Hayse, M. (2017). Game On! Experiential Learning With Tabletop Games. In *The Experiential Library* (pp. 103-115). Chandos Publishing.

Hays, R. T. (2005). *The effectiveness of instructional games: A literature review and discussion* (No. NAWCTSD-TR-2005-004). Naval Air Warfare Center Training Systems Div Orlando Fl.

Jenkins, H., Purushotma, R., Weigel, M., Clinton, K., & Robison, A. J. (2009). *Confronting the challenges of participatory culture: Media education for the 21st century*. MIT Press.

Krajcik, J. S., & Blumenfeld, P. (2006). Project-based learning. In R. K. Sawyer (Ed.), The Cambridge handbook of the learning sciences (pp. 317–334). New York: Cambridge

Krauss, J., & Boss, S. (2013). *Thinking through project-based learning : Guiding deeper inquiry*. Thousand Oaks, Calif.: Corwin.

A few practical ideas?

Games in the Classroom

- Werewolf

- Chase the Ace!

- Stone Age with algebra using resources as variables for equations

- Catan with probability

- Dungeons and Dragons as a Language Arts activity

- Pandemic Computational Thinking

https://niallmcfadyen.ca/2019/11/30/stone-age-personal-finance-lesson/

https://niallmcfadyen.ca/wp-content/uploads/2021/10/mcfadyen-game-media-analysis-lesson-plan-2021.pdf

https://niallmcfadyen.ca/2025/10/19/teaching-and-practicing-computational-thinking-with-board-games/

Project and Problem Based Learning

- Different frameworks and project types

- General Definition

- Can be more traditional or flexible and dynamic

- Inquiry Projects

- Production Projects

- Design Projects

Game Design Planner (Can also connect to ELA with language storytelling):
https://niallmcfadyen.ca/wp-content/uploads/2023/10/steam-game-design-planner.pdf

Narrative Documentary Organizer and Planner
https://niallmcfadyen.ca/wp-content/uploads/2019/03/narrative-documentary-organizer.docx

De-Streamed Math: https://docs.google.com/document/d/1b6COBh-L3xfW9_R41E5q-Zjs_b_pWPCekzsNwPjgKoI/edit?tab=t.0

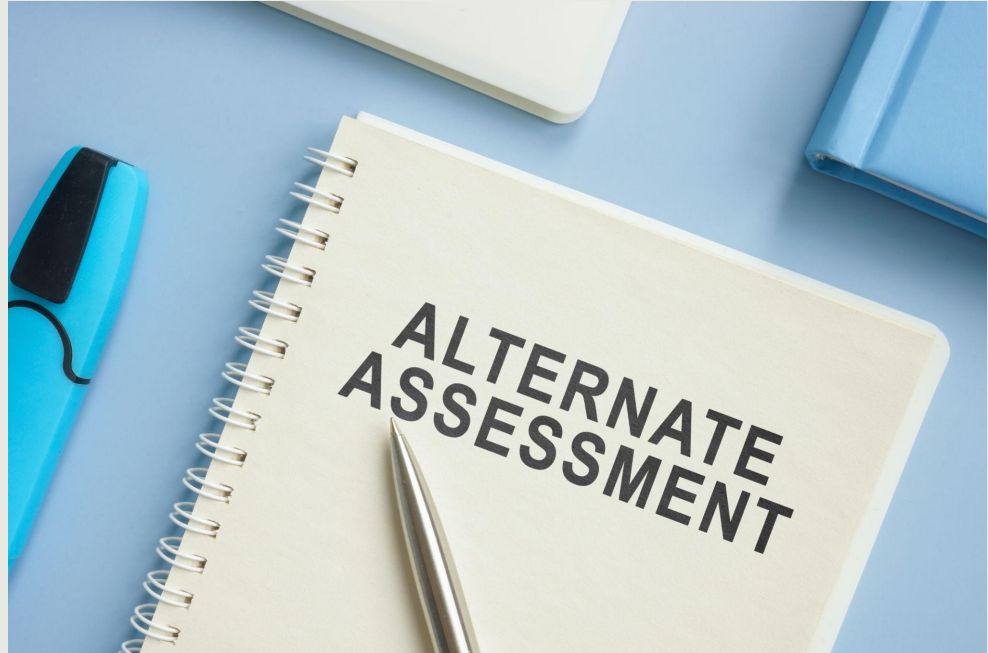CEMC: Problem of the Week: https://cemc.uwaterloo.ca/resources/potw

Outings and Experiential Learning

- Scavenger Hunt Field Trips

- Short Film Production-The Forks and CMHR

- Walking Tours-Teacher Led then Student Led.

- Projects Outside the Classroom
    - Heritage Building Project at the Millenium Centre for Doors Open Winnipeg
    - Student led workouts at Sport Manitoba and Vertical Adventures
    - Real-world Mentorship-Hackathons, Chat Bots, Board Games, Shadow Days, Internships

Scavenger Hunt and Video Production: CMHR Montage Video Blog Project

Assessment Practices

- No Tests (Sort of)
- Observational Notes
- Reflections
- Interviews
- Presentations
- Journals
- Play and Go Recording
- Portfolios
- Film Screenings

questions?

the end