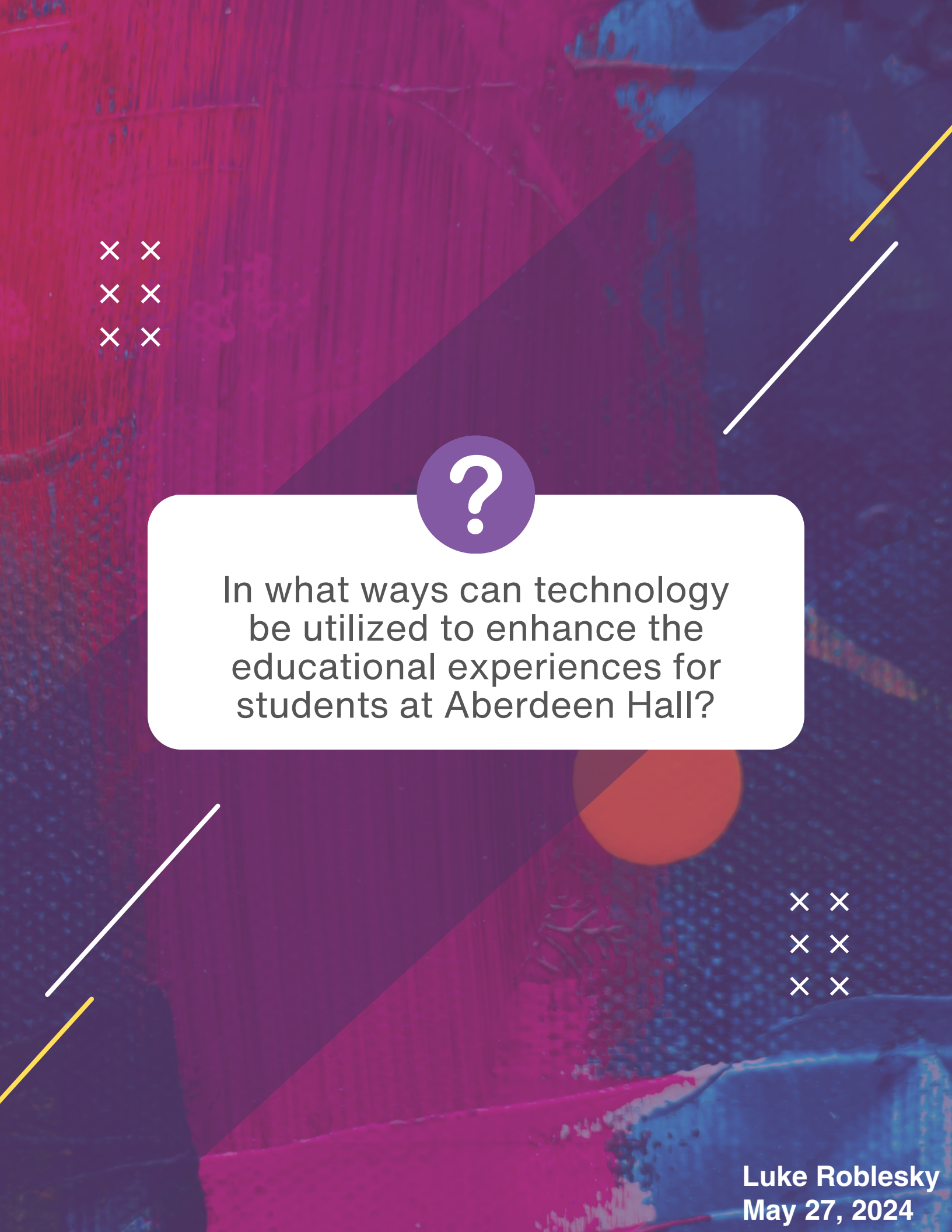
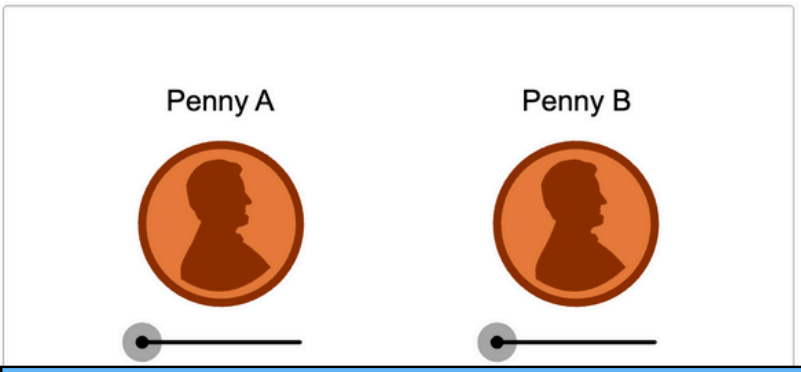
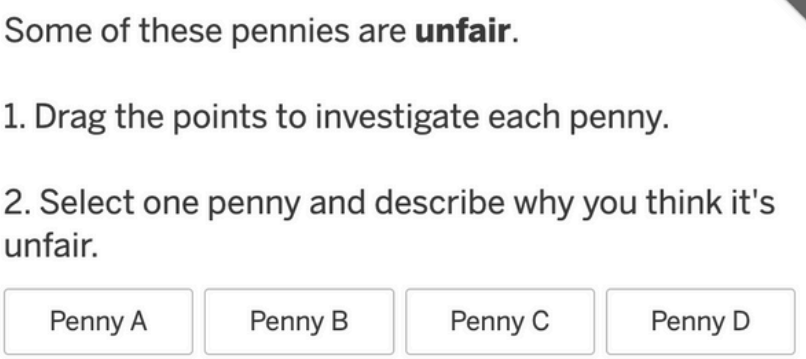


Luke Roblesky
May 27, 2024

Desmos Classroom



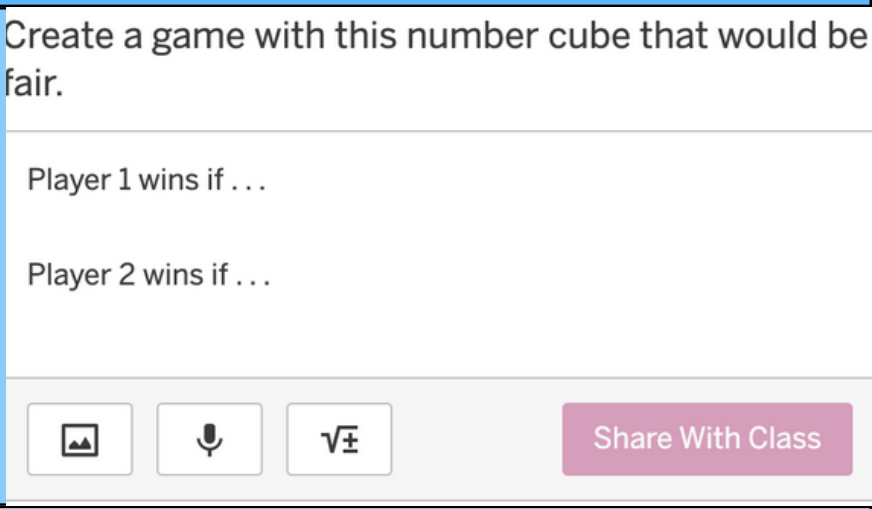


GRADE 7 MATH

- Some of the lessons in the grade 7 math class I joined were taught in an activity-based manner using the Demos Classroom platform
- In this specific lesson about probability, students would perform virtual experiments to explore the concepts using items such as coins and dice
- Before commencing each experiment, the students would inspect the item and perform a SEE-THINK-WONDER to consider whether it was fair or loaded
- After each of the activities, they would discuss their thoughts with others at their table and then the teacher would go over the activity as a class

EXTENSIONS

- After completing the activities, students were required to extend their thinking beyond analysis and brainstorm ways to modify a game with loaded dice to make it fair
- From my observations, students came up with a variety of clever, unique solutions to this



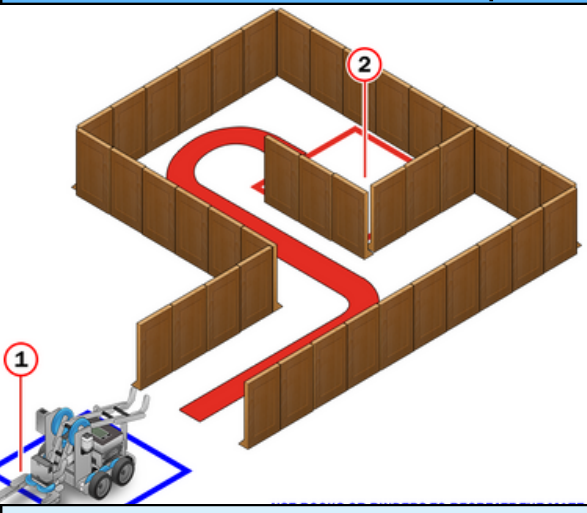
TAKEAWAYS

- Some math concepts can be taught effectively entirely in an activity-based lesson, but doing so takes careful planning and preparation
- By incorporating hands-on activities, students were actively engaged in their learning. This active participation likely fostered a deeper understanding of probability concepts compared to passive instructional methods
- The teacher's skill in effectively balancing time and transitioning students between work periods, discussions, and group activities was crucial for a successful lesson of this type

Vex IQ

GRADE 8 ROBOTICS

- Vex IQ is a robotics tool designed for elementary and middle school students.
- There are two main aspects to working with Vex IQ: Block code has to be written, providing the operating instructions to the robot, as seen in the photo above to the left. The students must also design and build the robot however they wish, with the end result resembling the photo in the top right
- In order to actually run the robot, the code has to be transferred from a computer to the device using a usb cable. This operation has to be completed each time there are updates made to the code



THE PROJECT

- For this assignment, the robot was required to navigate a maze without getting stuck
- The students had to use information from distance sensors, color detectors and bump probes on the robot to program the device to maintain a certain distance from the wall and navigate edges in the maze
- The goal was to navigate the maze as quickly as possible without hitting anything or becoming stuck

TAKEAWAYS

- Even in groups of two, at this grade level it is important for the teacher to always be circulating and checking in with groups. During this project, I found one student who was stuck but would never reach out and ask for help. I also came across one group where a member was doing the majority of the work and becoming upset with their friend but didn't voice their concerns
- Robot projects can be used within the classroom to prompt students to think both creatively and critically, encouraging them to design both a physical structure and code to program its functions

Technology in the Classroom

OBSERVATIONS AND OPINION

- My personal opinion is that tools like computers and robotics can provide increased access to and depth of education. However, phones and earbuds often serve as more of a distraction than a benefit in the majority of contexts where I have encountered their use
- Students often struggle to use a phone for specific tasks, such as calculations or participating in a Kahoot, and end up opening other social media applications
- It is not solely the fault of the student, as these applications are engineered to be incredibly addictive. Even some grown adults have trouble controlling their usage of apps like Instagram

WHAT THE RESEARCH SAYS

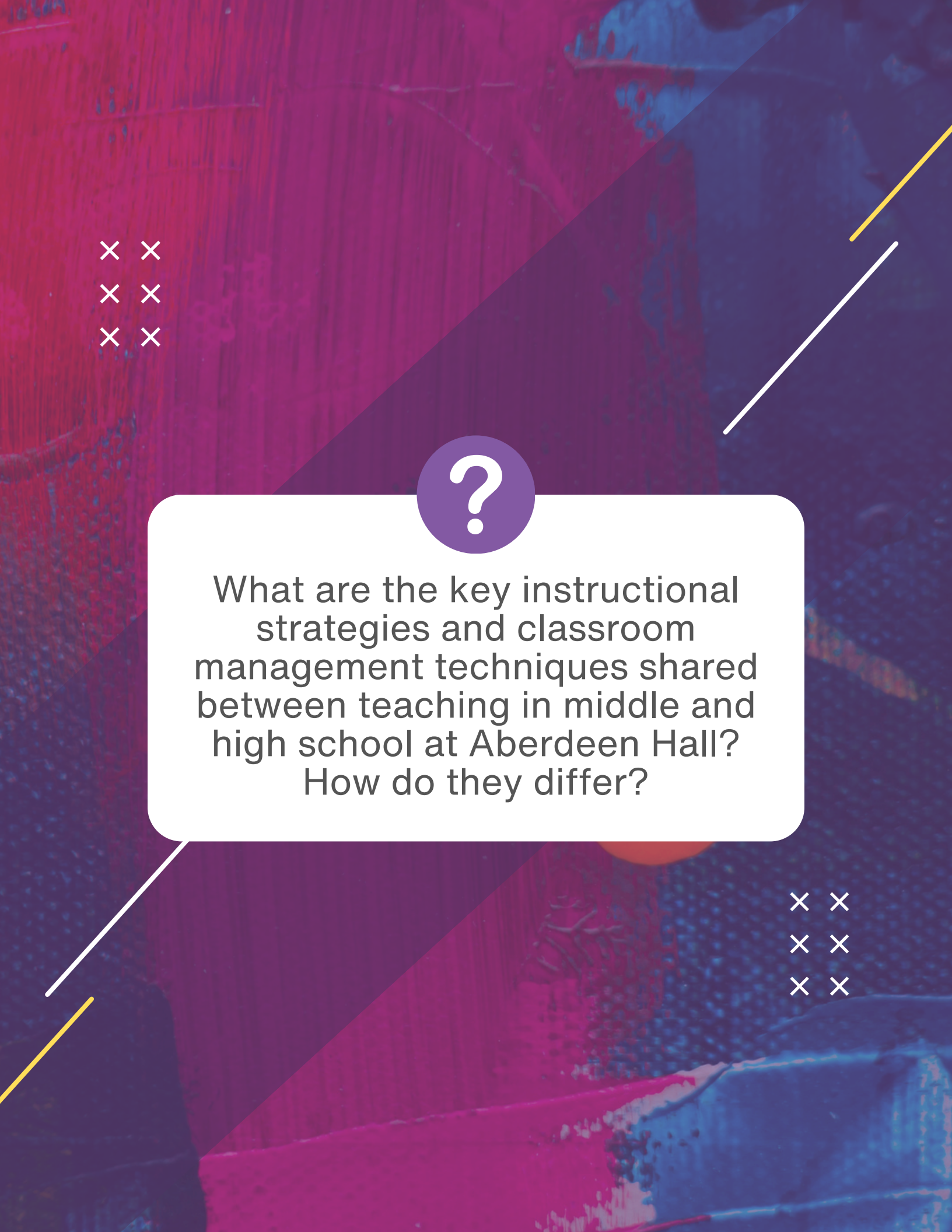
- Technology within educational settings presents a mix of potential benefits and drawbacks
- When used properly, it can provide unparalleled access to information and interactive learning opportunities. However, it poses challenges such as potential distractions and a decrease in face-to-face interaction among students
- Multiple provincial Ministries of Education across Canada (BC, Ontario) are taking measures to limit cell phone use within the classroom

THE GOOD

- Incorporating technology such as computers, tablets, and other devices can transform traditional lessons into interactive and engaging activities
- Allows for the adaptation of lessons to suit different learning style
- equips students with essential digital competencies, preparing them for the increasingly technology-driven future (Walden University, 2024)

DOWNSIDES

- Technology can sometimes outpace the developing brain of a child
- Professor Claxton, a cognitive scientist, believes that it is crucial for a child's writing medium to align with their speed of thought. As they learn to type quickly, there may be a disconnect between thought and typing, leading to disengagement of the student's mind (Robinson, 2018)
- “Research shows that frequent cellphone interruption in the classroom, social media platforms with addictive algorithms and predators who seek to exploit young people all present significant risks to young people. Studies have found that children’s mental health and physical safety can suffer as a result of body-image distortion, cyberbullying, images shared without consent and disturbing instances of sextortion” (Premier, 2024)


?
What are the key instructional strategies and classroom management techniques shared between teaching in middle and high school at Aberdeen Hall? How do they differ?

SHARED TECHNIQUES

- Differentiated Instruction: In both the middle and high school classes I observed, tailored teaching methods were used to accommodate diverse learning styles and abilities. Individualized Education Program (IEP) learning plans were also considered
- Active Learning: Students were engaged in hands-on activities, group work, and discussions to promote deeper understanding and retention of concepts
- Scaffolded Instruction: Complex concepts were broken down into smaller, more manageable steps to support student comprehension and skill development
- Formative Assessment: Students' progress was regularly assessed through quizzes, interactive games, self-assessments and class discussions to inform instructional decisions and class direction
- Use of Technology: Technology, such as interactive whiteboards, educational apps, and online resources were used extensively to enhance learning experiences

DIFFERING ELEMENTS

- Depth of Content: As expected, the high school classes typically cover more advanced topics and go into greater depth compared to middle school courses
- Independence: High school students are expected to take more responsibility for themselves and their learning. They are given more autonomy, including managing their time, selecting their courses, leaving school grounds, and seeking help when needed
- Pressure: Many of the high school students I interacted with were preparing for post-secondary education. The competition for such programs continues to increase, with the average GPA for admission to UBC sciences last year being around 93%. Middle schoolers, who don't yet have this pressure, are generally able to enjoy their day more freely
- Classroom Dynamics: As students mature, a wider range of abilities and interests becomes more apparent among them, necessitating teachers to adapt their instructional strategies accordingly

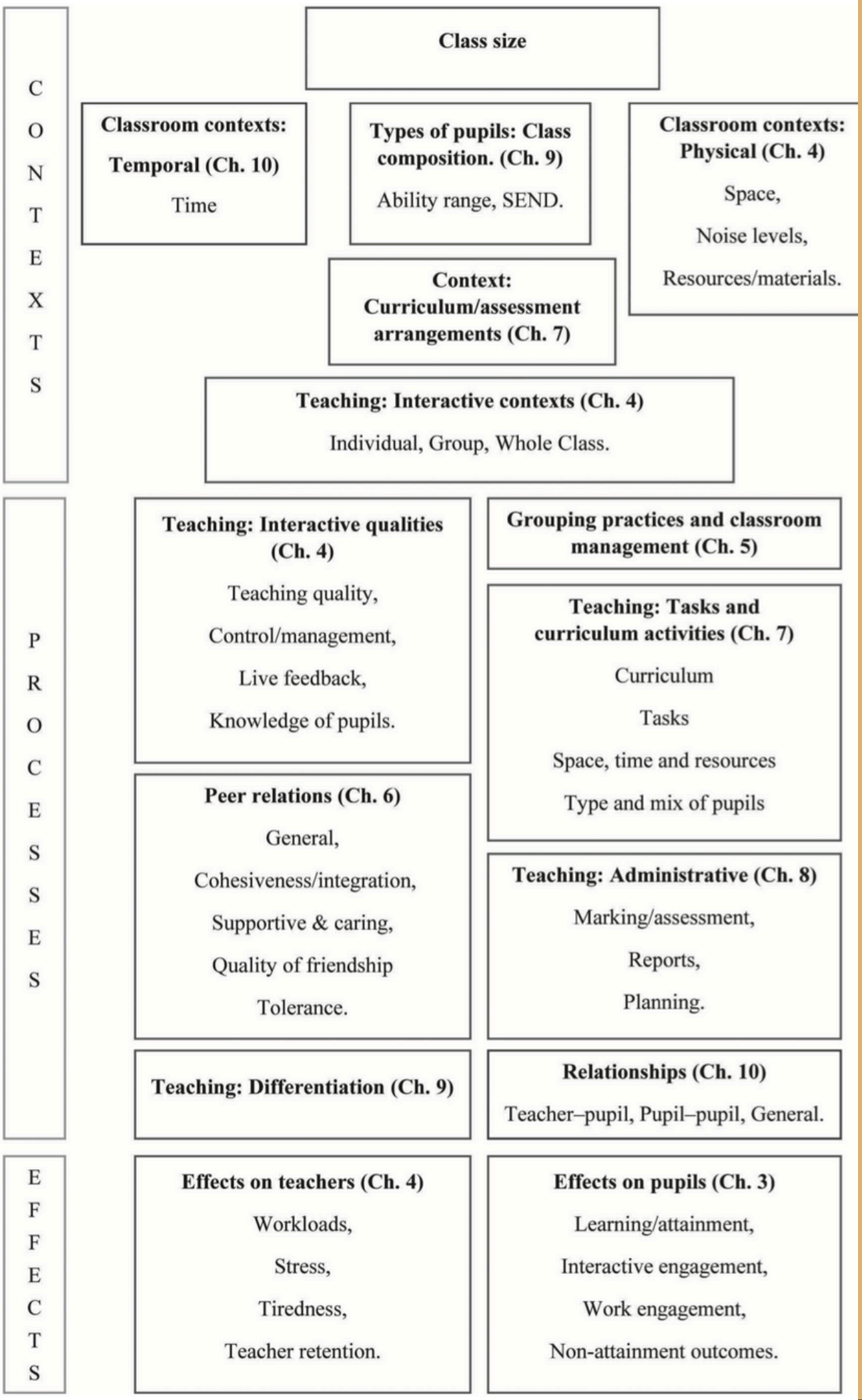

?
Based on my observations and pedagogical stance, what do I believe is an ideal class size range? What does the research say?

OBSERVATIONS & OPINION

- Ideal class size is a complex subject that depends greatly on the subject matter being taught, the unique dynamics of the students in each class, and the preferences of the teacher
- For subjects requiring more individualized attention or hands-on activities, such as science labs, robotics courses, or classes with a higher proportion of students with additional needs, a smaller class size (15 - 20 children) is preferable. This allows the teacher to provide adequate support and guidance to each student
- In classes focused on lectures or more independent study, a larger class size may be more manageable without sacrificing the quality of education (25 - 30 children)
- I believe that part of determining class size should be based on the number of students requiring extra assistance in the class. While it's impossible to anticipate the exact needs of any classroom before becoming acquainted with it, student needs could be estimated based on their Individualized Education Program (IEP) plans when allocating students to classes
- The ideal class size also depends on the teacher's teaching style, their ability to manage groups, and their capacity to provide personalized attention to students. It is my opinion that newer teachers would benefit from initially working with smaller class sizes and then gradually taking on larger ones as their experience increases
- At Aberdeen Hall, I noticed that classes with an exceptionally small number of students could result in the atmosphere lacking energy and dynamism, potentially hindering engagement and participation. This was especially noticeable if the majority of the students were on the quieter side, which could have a paradoxical effect of actually being draining for the teacher, who has to constantly keep up their energy levels

WHAT THE RESEARCH SAYS

- “We have seen that much of the research and policy narrative about class size is in terms of the extent to which it affects or causes changes in pupil attainment. Common ways of addressing the effect of class size have followed this approach and have contributed to a view that one can identify a specific size of class size effect and compare this with other educational interventions.” (Blatchford & Russell, 2020)
- The quote above highlights the overemphasis in existing research on evaluating class sizes solely based on student attainment, while putting aside other considerations such as classroom dynamics, teacher workload, and student engagement
- Analysis of class sizes is complex and multifactorial. The diagram on the following page shows many of the aspects that must be considered when conducting studies on optimal class size
- In the past, research unanimously showed that student test scores improved with smaller class sizes. However, the narrative on this has changed
- While much of the research indicates that smaller class sizes lead to better overall student learning outcomes, some studies suggest a negligible effect of decreasing class sizes
- The study conducted by Gilraine (2017), which examined test scores in relation to class sizes, found that as class sizes decreased, test scores also declined
- It was hypothesized that this is due to the “new teacher effect,” which posits that student exam results are influenced by the experience level of the educator they learn from
- On the contrary, Class Size Matters, an American non-profit organization, has a plethora of studies on the website showing that smaller class sizes overall have a net benefit on student well-being, learning, and success (Class Size Reduction Research, 2024)


CONTEXTS
Class size
Classroom contexts: Temporal (Ch. 10)
Time
Types of pupils: Class composition. (Ch. 9)
Ability range, SEND.
Classroom contexts: Physical (Ch. 4)
Space,
Noise levels,
Resources/materials.
Context: Curriculum/assessment arrangements (Ch. 7)
Teaching: Interactive contexts (Ch. 4)
Individual, Group, Whole Class.
PROCESSES
Teaching: Interactive qualities (Ch. 4)
Teaching quality,
Control/management,
Live feedback,
Knowledge of pupils.
Grouping practices and classroom management (Ch. 5)
Teaching: Tasks and curriculum activities (Ch. 7)
Curriculum
Tasks
Space, time and resources
Type and mix of pupils
Peer relations (Ch. 6)
General,
Cohesiveness/integration,
Supportive & caring,
Quality of friendship
Tolerance.
Teaching: Administrative (Ch. 8)
Marking/assessment,
Reports,
Planning.
Teaching: Differentiation (Ch. 9)
Relationships (Ch. 10)
Teacher–pupil, Pupil–pupil, General.
EFFECTS
Effects on teachers (Ch. 4)
Workloads,
Stress,
Tiredness,
Teacher retention.
Effects on pupils (Ch. 3)
Learning/attainment,
Interactive engagement,
Work engagement,
Non-attainment outcomes.

REFERENCES

- Blatchford, P., & Russell, A. (2020). Rethinking class size: The complex story of impact on teaching and learning. UCL Press.
- Class Size Reduction Research. (2024, May). Class Size Matters. Retrieved May 21, 2024, from https://classsizematters.org/research-and-links/
- Gilraine, M. (2017). Multiple Treatments from a Single Discontinuity: An ApplicationtoClassSize. http://individual.utoronto.ca/mgilraine/research/Gilraine_Class_Size.pdf
- Premier, O. O. T. (2024, January 26). B.C. launches concrete actions to keep kids safe, healthy. BC Gov News. https://news.gov.bc.ca/releases/2024PREM0004-000088
- Robinson, N. (2018, June 8). Future of technology in the classroom debated at EduTech conference. ABC News. https://www.abc.net.au/news/2018-06-08/what-role-should-computers-play-in-the-classroom3f/9844864
- Walden University. (2024, March 13). Top 5 benefits of technology in the classroom. Walden University. https://www.waldenu.edu/programs/education/resource/top-five-benefits-of-technology-in-the-classroom