



Introducing Applied Design, Skills and Technologies (ADST) Through The Genius Hour Concept

Considerations of Experiential Learning in Grade 5

Executive Summary

A grade 5 teacher has successfully incorporated Genius Hour ideas and the Hour of Code materials into her French Immersion classes. Experiential learning helps to create opportunities to use authentic language in meaningful and timely social interaction. By incorporating Genius Hour into her workweek, the grade 5 teacher was able to promote conversation, questioning and language acquisition into her learning environment, while beginning to attend to the Applied Design, Skills and Technologies (ADST) curriculum.

ADST builds on students' natural curiosity, inventiveness, and desire to create and work in practical ways. It harnesses the power of learning by doing, and provides the challenging fun that inspires students to dig deeper, work with big ideas, and adapt to a changing world. It provides learning opportunities through which students can discover their interests in practical and purposeful ways (<https://curriculum.gov.bc.ca/curriculum/adst/goals-and-rationale>).

The policy regarding French Immersion programming in British Columbia states:

The Ministry of Education supports French Immersion programming in BC schools, consistent with the goal of providing the opportunity for non-francophone students to become bilingual in English and French (<https://www2.gov.bc.ca/gov/content/education-training/k-12/administration/legislation-policy/public-schools/french-immersion-program>).

Further, the purpose the BC Ministry of Education policy includes:

French Immersion programming benefits the cognitive and social development of students, as well as their opportunities for career advancement. Research demonstrates that students who successfully complete a French Immersion program attain functional bilingualism while doing as well as, or better than, their unilingual peers in the content areas of curriculum, including English Language Arts (<http://www2.gov.bc.ca/gov/content/education-training/k-12/administration/legislation-policy/public-schools/french-immersion-program>).

Background

This case is situated in a French immersion school, and its school administration strongly supports the introduction of educational innovations and encourages its teachers to explore new ways of teaching and learning.

The school district in which this case study is set is an early adopter of *Taking Making Into Classrooms* and has hosted Maker Day events for their teachers. It was host for one of the first Ministry of Education funded, Lighthouse Lab Coding workshop for teachers (<https://lighthouselabs.ca/press/teachers-to-take-part-in-code-class-a-free-workshop-introducing-coding-computational-thinking>).



Setting the Stage

Genius Hour is a classroom concept inspired by Google's practice of encouraging its engineers to take twenty percent of their work time to pursue a passion project. In a classroom setting, Genius Hour is a form of personalized learning that gives students time to explore their own areas of interest during class time.

Teachers have brought this approach to the classroom in many different ways (<https://www.edutopia.org/blog/genius-hour-essentials-personalized-education-nichole-carter>).

For many teachers, adopting the entire scope of the new ADST curriculum is a daunting challenge. Some, like the teacher in this case, start slowly by adding components of the ADST framework into their classrooms in slow, incremental stages. The teacher featured in this case started with Genius Hour. She introduced tools and simple machines and technologies that the students could explore and take apart. Once she was introduced to Hour of Code, she added that to her classroom activities. These two classroom interventions have given her confidence to introduce more ADST content and pedagogical approaches into her work.

Case Description

The teacher in this case is a master teacher with an excellent reputation for embracing teaching innovations and providing students with opportunities for self-differentiated learning. She identified Genius Hour as a vehicle for her students to develop their critical thinking, imagination and creativity, and French language skills.

To support Genius Hour, she started slowly and purposefully by bringing discarded clocks and other simple machines into her classroom. Students were encouraged to take the machines apart using simple hand tools, to engage in conversations in both French and English, and to think critically about how the various machine parts worked together. As their learning evolved the students began to re-purpose the parts by building their own machines and creations. Throughout the process, the students conversed, asking questions, offering support and seamlessly exploring technologies while developing specific and conversational vocabulary.

During the planning and thinking stages, the teacher grappled with some of the following considerations:

- How do these valuable learning experiences link to the curriculum?
- How will I explain this approach to the principal, to my students, and to their parents?
- Where will I find materials, and what tools will the students need?
- What about student safety?
- How will I ethically recycle or dispose of the used materials?
- How will I assess student learning?

The introduction of the Hour of Code was a next logical step. BC Premier Christy Clark made an announcement that all students needed to learn coding, and the school district was preparing to add coding to its curriculum (<http://www.theglobeandmail.com/technology/bc-government-adds-computer-coding-to-school-curriculum/article28234097/>).



Reason for introducing Genius Hour into classroom activities

- Value of Genius Hour (<https://www.edutopia.org/blog/genius-hour-essentials-personalized-education-nichole-carter>)
- Benefit of Genius Hour to foster curiosity and imagination (<http://ditchthattextbook.com/2017/02/27/12-ways-to-really-make-genius-hour-work-in-your-class/>)
- Benefit of Hour of Code to extend learning (<https://code.org/learn>)
- Link between Genius Hour, Hour of Code and ADST

She is a master teacher and is constantly looking for ways to enhance her own learning and improve student learning. She used the popularity of Genius Hour to consider ways of encouraging student exploration, choice, conversation, and engagement. Once she was aware of the Hour of Code, she added that to her work. Currently, she is working with her district's IT department to expand the use of coding in her classroom. She is pleased that the Hour of Code Resources is a global movement and resources are available in both French and English (<https://hourofcode.com/fr> and <https://hourofcode.com/ca/en>)

She has turned to *Taking Making Into Classrooms: A Toolkit to Foster Creativity and Imagination* for suggestions on how to integrate the ADST curriculum into her work.

Solutions and Recommendations

- Develop a rationale for bringing innovations into your classroom, and be clear with your administrators, parents and the students about the learning outcomes.
- Teachers need to anchor learning experiences (i.e., Hour of Code, Genius Hour) by making explicit and purposeful connections to the curriculum.
- Ensure you have adequate tools and materials to support student exploration. The tools that you choose will depend on the materials you use. Your choice of tools will inform your safety plan.
- Different tools require different safety clothing, such as goggles or gloves.

Current, Future or Related Challenges

Linking Genius Hour and Hour of Code to the new ADST curriculum. The teacher's work pre-dated the introduction of the ADST curriculum, so aligning best practices from the previous year's activities with the Big Ideas and Core Competencies of ADST will take time and support.



Key Terms & Definitions

Genius Hour: A form of personalized learning that gives students time to explore their own areas of interest during class time

Hour of Code: A one-hour introduction to the basics of computer science that has flourished to become a grassroots campaign involving educators and students worldwide.

Coding: Writing, testing, and troubleshooting simple to complex computer language based on a specific structure or syntax.

Appropriate Technologies: Small scale, energy efficient, sustainable, people-centered technologies, such as hand-powered water pumps.