

a fine FACTA



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Imagine! Explore! Create!

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Contents

From the Council

A Letter from the Editor <i>Kim Friesen Wiens</i>	3
President's Message <i>Tamera Olsen</i>	5
Conference 2022: First STEAM.....	6

Imagine the Possibilities

Imaginative Capabilities and Teachers Leading Schools Through This Era of Accelerated Change <i>Paul Syme</i>	9
<i>What and And: Changing the Dialogue One Word at a Time</i> <i>Amanda Clark</i>	19

Explore New Horizons

Art Education and Artificial Intelligence: AI Artmaking as a Way to Teach About AI Ethics <i>Patti Pente, Cathy Adams and Kenzie Gordon</i>	21
The Strangeness of Creating Visual Art in the Immediate Present <i>Darrin Wilson</i>	29

Create Student-Centred Experiences

Integrating Career Education into the Grade 3 Curriculum: Connecting Worlds <i>Sara Garcia, Kerry B Bernes, Annelise M Lyseng, Jonathan L Roque, Karissa L Home and Landon Gross</i>	32
The Magic of Connection: Puppetry in the Drama Classroom <i>Molly Danko</i>	47
Make Magic with Masking! <i>Helen Berscheid</i>	50
<i>Spider-Man: Into the Spider-Verse</i> Lesson Plan for Grades 5 and 6 Music <i>Kim Friesen Wiens</i>	52

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From the Council

A Letter from the Editor

Kim Friesen Wiens

The theme for this issue of *A Fine FACTA* is “Imagine! Explore! Create!”

When I sent out the call for submissions, I had a definite idea of what I was looking for. However, as the submissions began to land in my inbox, I was astounded. The wide range of topics far exceeded anything I had imagined!

Another exciting aspect of this issue is the inclusion of three peer-reviewed articles. These articles were blind reviewed by scholars and educators in the field. The authors were then given feedback to help make their articles ready for publication in our journal. I hope you enjoy reading about the exciting research happening in fine arts education in Alberta.

Imagine the Possibilities

Emerging from the chaos of the COVID-19 global pandemic, I asked contributors to imagine new possibilities for fine arts education. What did we imagine our students doing, or wished that they could have done, when they were engaged in remote learning or confined to cohorts? What possibilities lie in store as we look to reconnect with our vibrant and diverse student community?

In his peer-reviewed article, Paul Syme challenges educators and the education system at large to develop imaginative capabilities in order to disrupt the status quo and consider education always in the process of becoming.

In her article, Amanda Clark asks us to imagine the possibilities for our classrooms when we change the language we use. When we focus on the words

what and *and*, instead of *why* and *but*, engagement in our classrooms can grow. Can you imagine it?

Explore New Horizons

As I put the finishing touches on this issue, the news was filled with headlines about ChatGPT—a chatbot capable of writing songs and mimicking human dialogue. I am filled with excitement and also a bit of trepidation. What does this mean?

Exploring the new horizons of artificial intelligence (AI) has clearly been on the minds of arts scholars and educators in Alberta, as well.

In their peer-reviewed article, Patti Pente, Cathy Adams and Kenzie Gordon examine the ethical implications of AI technology in the arts. They call on arts educators to consider AI as a collaborator in the education process, reminding us that our students are actively engaging in AI use in other settings.

In his article, Darrin Wilson demonstrates how AI can be used in the art classroom and provides practical suggestions for exploring these new horizons with our students.

Create Student-Centred Experiences

Through our imaginings and explorations, we create fine arts experiences that centre our students.

Writing for general classroom teachers, Sara Garcia, Kerry B Bernes, Annelise M Lyseng, Jonathan L Roque, Karissa L Horne and Landon Gross describe

From the Council

a research project they conducted in a Grade 3 classroom in Alberta. Their research focused on integrating career education through a cross-curricular approach. Practical connections to elementary classrooms and fine arts education abound in this peer-reviewed article.

The rest of this section contains ideas you can use in your classroom on Monday morning.

Molly Danko shares how she connects with her drama students through the use of puppetry. She offers valuable suggestions for building puppets and exploring puppetry with students.

Helen Berscheid provides fantastic ideas for using the simple technique of masking when painting, which more intentionally connects students to the creation of art.

Finally, my Spider-Man lesson plan outlines a movement-focused lesson that also incorporates popular music and can facilitate conversations about who can be a superhero.

These creative pieces truly centre our students' experiences!

To round out this issue, we have included photos and session reviews from our amazing fall conference, First STEAM, hosted with the Science Council in Banff last October.

I imagine that you will find the articles within worthy of exploration and that they will help you create many new ideas!

Kim Friesen Wiens teaches music in Edmonton. She is also a PhD student at the University of Alberta, with a focus on critical music and culturally sustaining pedagogical practices in music.

A Fine FACTA is pleased to publish both research-based articles and articles with practical application for the classroom.

Submissions for peer review are due **October 31, 2023**. Other submissions are due **January 31, 2024**.

President's Message

Tamera Olsen

Every day, arts educators dig deeply to realize art creation in our classrooms. Whether conceptualizing our programs of study or experimenting with new ideas, we are always engaging in an exploration of what art can become.

The arts classroom is a natural place for differentiated teaching and learning. Our students each bring their own artistic aesthetic and, through disciplinary literacy, begin to understand their own choices. Everything in the creation of art—be it dance, drama, music or visual art—is about the individual. Students are inspired by their teachers to practise, memorize, push themselves physically and work outside their comfort zones to make something meaningful.

What does it mean to be an artist?

I recently attended an event hosted by the Esker Foundation, an art gallery in Calgary. Posted beside each work was a Q&A with the artist. The questions were all framed around imagination, exploration and creation.

By encouraging our students to freely explore subject matter and express themselves in the process, we can generate emotional responses, both in the creator and in the audience. This is how we connect. (I have watched my sons play in jazz bands, and I can't count how many times I have noticed an emotional and physical response from the audience.)

Celebrating student experiences is an integral part of art creation. Performances, gallery walks and

critiques highlight the important work of students and offer opportunities for peer review and feedback. When artists come together, they get to explore the work of others and learn from and be inspired by each other, firing up their imaginations over and over again.

The opportunity for arts educators to come together is top of mind for the Fine Arts Council (FAC). Artists shouldn't work in silos (although they often do). The FAC offers opportunities to share practical knowledge, tackle important questions and network. When I visit with an arts colleague, even for an afternoon, I am invigorated, inspired and motivated. I envision a council that offers immersive opportunities that fulfill the needs and desires of its members. Play a part by joining a committee, helping facilitate an event, participating in a focus group or attending a function to connect with other arts professionals.

Imagine the possibilities!

Tamera Olsen (she/her) was elected FAC president at the First STEAM conference in October. She previously served as FAC treasurer for three years and has held officer positions on arts councils and museum boards. She has taught visual art throughout her career as an artist and, more recently, as a public school teacher. She teaches junior high school art at Louis Riel School, in Calgary, where she is also the artist-in-residence.

Conference 2022: First STEAM

Last fall, the FAC was thrilled to host a joint conference with the Science Council. First STEAM was held October 20–22, 2022, at the Banff Centre for Arts and Creativity. The beautiful location and amazing sessions made for a perfect conference.

If you haven't had a chance to attend an FAC conference, we hope these photos and session reviews will entice you to do so in the future.

Art in Service of the Creator

Izabella Orzelski

As usual, the FAC conference was a smashing success. It provided participants with a plethora of high-quality and engaging art workshops in the majestic Banff mountains. With the art and the forging of new friendships and collaborations, the creative energy in the air was infectious. Of course, it would be a sin to not mention the gourmet food served twice a day. Kudos to the conference organizers for providing this creative heaven!

As a practising artist and educator, I had the privilege of leading two workshops, each one hour long.

The aim of my first workshop—"Overcoming Anxiety Through Art"—was to use the mandala as a means to relax the mind and soul while creating an amazing piece of art.

I strongly believe that art teachers should try this project themselves before introducing it to students. That way, they will gain first-hand knowledge of the challenges students will encounter during the creative process. It will also give them their own concrete version of the project that they can demonstrate for students in the classroom (in addition to using Power-Point presentations and a step-by-step instructional YouTube video).

After a short introduction, I asked participants to create a mandala in black and white or in colour. I provided all the materials, including Sharpies, pencils, rulers, compasses and paper.

Seeing the workshop space become calm was an amazing experience. Everyone was immersed in the process of finding their own unique creative expression. Soon, their beautiful mandalas came to life.

I was happy to hear participants sharing how accomplished and at peace they felt after the workshop—especially those who had never held their own artistic abilities in high regard. They left with the motivation to try more new "artsy" things.

My second workshop—"A Stained Masterpiece"—was a natural continuation of the first workshop, with the possibility of expanding it into a cross-curricular art project (art and Grade 8 social studies). Many participants from the first workshop returned.

This time, everybody was equipped with a circular Masonite board and a hot-glue gun. After creating a



From the Council



line drawing sketch on the board, they covered the lines with hot glue—generating natural borders for the pouring medium and ink. They then covered the glue lines with silver paint.

Everyone was focused on and committed to their artwork while in the meditative zone. Soon, amazing pieces that looked like stained glass came to life. But to enjoy the final results, participants had to wait a couple hours for the medium to dry. Then, voilà, the faux stained glass masterpieces were ready to be picked up and taken back to the classroom to be shared with students.

These meditative and calming art activities can become useful tools in the classroom for enhancing students' self-esteem. The activities are fun, generative and engaging, and the level of difficulty can be easily adjusted to fit the needs of the particular classroom.

Participants left the workshop with a completed artwork, a handout, and links to a step-by-step

PowerPoint presentation and video instructions for use in the classroom.

As teachers, we create a social network and a community of lifelong learners in service of our students. The FAC conference was an integral part of this.

Izabella Orzelski, MFA, PhD, is the FAC's generalist representative and an art specialist with Edmonton Public Schools.

Play That Podcast!

Connie Ohlmann

Finding meaningful, relevant and accessible ways to reach our students is an ongoing quest for music teachers (and all teachers). Kim Friesen Wiens masterfully added to our tool box with her session "Play That Podcast!"

Why use podcasting as a medium for sharing in the context of a classroom? Kim quickly convinced us that podcasts are a great tool for the classroom.

First, as she pointed out, no fancy technology is needed—just a device that can record a voice memo. No more fussing about camera angles, getting distracted by one's appearance or managing the plethora of possibilities when it comes to video editing.

Podcasting also offers a degree of anonymity that is difficult to achieve when recording videos. This allows students to share more genuinely about topics and ideas that matter to them. In a music class, this can include analyzing a favourite song, sharing background information about a song, discussing social justice topics—the list goes on.

This session, while geared for Division I music, was relevant to all grade levels and subject areas. Kim shared ideas for making podcasting work in every context, including high school social studies and English language arts. There was a buzz in the air as participants made connections to their own teaching contexts.

Perhaps the best part of the session was Kim's practical steps for creating a podcast episode. She guided us through a seamless process and kept us from getting bogged down in the minutiae. In under 30 minutes, we had created our own podcast



Thank you, Kim, for giving us one more engaging and current tool for authentically highlighting the voices of our students.

Connie Ohlmann is the FAC webmaster and a music teacher with Edmonton Public Schools.



Photography for Middle School Learners

Darrin Wilson

Samia Drisdelle presented a two-hour session entitled “Photography for Middle School Learners.”

Samia is a teacher with the Calgary Board of Education and a past FAC art representative. She has over 20 years of fine arts and applied arts teaching experience with children of all ages and currently teaches photography, French and fashion at Marshall Springs School.

In this session, Samia described her photography course and lesson plans that have been successful in her classroom. She also shared examples of student work and photography tips and tricks for a variety of ages and classroom settings.

Touching on both the science and the art of photography, participants engaged in a photo scavenger hunt on the beautiful Banff Centre grounds. They then wove together two self-portraits, creating unique multidimensional artworks.

Participants walked away with many ideas for the classroom and printed copies of their own photos to share with their students.

Darrin Wilson is the FAC’s art representative and an art teacher with the Calgary Board of Education.

episodes—selecting a topic, curating the content and coming up with a finished podcast.

After choosing a song from a curated list to help us focus, we broke into small groups and did a close listening of the song, naturally sharing what we were hearing in the music while it played. This lasted for about ten minutes, at which point we wrote our script, following a formula that included an introduction of ourselves and the topic, a brief excerpt from the song, our observations about the song, and a conclusion. We were given five minutes to write the script. Then, we recorded the podcast episode.

An essential piece of advice from Kim was to record the whole episode in only one take. This was key. It stopped us from restarting after every small stumble or mistake and succumbing to perfectionist tendencies.

A great podcast feels like a conversation, and podcasting is an accessible way to allow our students to share their thoughts and ideas with us naturally.

Imagine the Possibilities

Imaginative Capabilities and Teachers Leading Schools Through This Era of Accelerated Change

Peer-Reviewed Article

Paul Syme

The benefits of imaginative capabilities tend to be undervalued and overlooked by students, teachers and educational leaders. This lack of appreciation is as evident in scholarly content as in educational contexts—a problem this article seeks to address by unpacking the black box of how imagination is developed and applied in teaching and leading practices.

Louis and Wahlstrom (2012, 30) found that in schools where teachers and educational leaders collaborated to guide the evolution of the school community, “the development of improved learning and innovation contexts for teachers [stemmed from] the ability of principals to stimulate teachers’ innovative behavior.” If schools are to contend with the complexities and challenges of the unprecedented pace of cultural, environmental, social, systemic and technological change, they will need teachers with the imaginative capabilities to conceive and deploy innovations. Therefore, it can be argued that teachers would benefit from credible theories about how to develop imaginative capabilities.

This article examines relevant theories on imaginative capabilities related to teaching and leading practices. It begins by exploring the term *imagination* and other key concepts (including creativity, imaginative capabilities, innovative teaching, innovative leading, and teaching and leadership in complex systems). After

an analysis of how imaginative cognition and creative activity are understood, the article considers the place of imaginative capabilities among teachers and educational leaders in complex school organizations. In sum, the article reinforces the call for imaginative capabilities in teachers and reveals the gap in theoretical knowledge to suggest how those capabilities can be heightened. These pages lay the groundwork for further research into how innovative teachers and educational leaders acquire imaginative capabilities.

What Is Imagination?

Determining what imagination is and how to understand it in an educational context is no easy feat, largely because notions of imagination permeate all disciplines and few examine it in terms of capabilities that can be enhanced.

The consensus is that imagination is a requisite part of any novel output, whether creative production in the arts, architecture and design or innovations in science, medicine and engineering. For something new to take shape, it must be mentally conceived. Imagination is required to bring it forth into consciousness and then into reality.¹

The term *imagination* is frequently applied interchangeably with *creativity* and *innovation*. However,

Imagine the Possibilities

because imagination often precedes the change people want to see in the world or seeds efforts toward creative or innovative solutions, it warrants being understood as something distinct from creativity and innovation (Asma 2017; Egan 1997, 2005; Judson 2023; Liu and Noppe-Brandon 2009).

Liu and Noppe-Brandon (2009, 19) define *creativity* as “imagination *applied*: doing something, or making something, with that initial conception. . . . Innovation comes when an act of creativity has somehow advanced the form.”

Stuart (2019, 712) describes imagination as a function that is “crucial for managing our cognitive interaction with the world,” whereby people associate the novel with the familiar, conjuring content that is not necessarily present to the senses (such as the characteristics of water in its absence).

Thomas recognizes imagination philosophically and cognitively as that which “makes possible all our thinking about what is, what has been, and, perhaps most important, what might be.”² Finding novel responses to emergent conditions requires us to nourish our imaginations as we look to our experiences and senses for inspiration and insight.

Greene (2007, 4) observes that “to activate the imagination is to discover not only possibility, but to find the gaps, the empty spaces that require filling as we move from the *is* to the *might be*, to the *should be*. To release the imagination too is to release the power of empathy, to become more present to those around, perhaps to care” (italics added).

Imaginative capabilities that include divergent, inductive, iterative, improvisational and empathetic operations require us to look for possibilities in the connections, correspondence and blurred boundaries found among people and paradigms foreign to the place in need of solutions (Corbett 2013; Judson 2023; Ulmer 1994). Therefore, to find new ideas, we must be able to enter and explore unfamiliar paradigms.

Resource- and time-strapped teachers may be reluctant to rely on practices they see as frivolous or strangely unscientific in order to deliver archetypal solutions to novel situations. Knowing more about how imaginative capabilities are developed and what positivist cognitive sciences have observed about the imagination is key.

Psychologists have found that some conditions are more conducive to imaginative activity than others. In

studies on flow, Csikszentmihalyi (1990) describes this ultimate mental state as a product of being immersed in joy, creativity and a process of total involvement. Flow studies are often referenced in relation to the mental states of imaginative, artistic and creative thought because of the relationship that flow has with the mindset entered into when designing something innovative (Csikszentmihalyi 2013; Martin and Colp 2022). Kounios and Beeman (2009) investigated antecedents to the imagination, finding that happiness, curiosity and the thrill of revealing the unknown prepare the mind for imaginative insights.

Technological advances in neuroscience, such as functional magnetic resonance imagery (fMRI), have enhanced recent understandings of cognitive processes (Mather, Cacioppo and Kanwisher 2013). Specifically, fMRI has been used to observe brain images while imagination occurs.

Studies have observed imaginative behaviour in subjects where unfamiliar contexts implicate the brain’s default mode network (DMN) to trigger “intentionality-based imagination” (Abraham 2016, 4202) processes. In this category of imagination, the imager spontaneously recalls phenomena from “an extensive and diverse repertoire of relevant knowledge” (p 4203), likely in harmony with their world view (Fink et al 2009; Kong et al 2020; Kounios and Beeman 2009). Abraham (2016, 4202) reports that these “images” include

autobiographical and episodic memory (e.g., reminiscing about my first day of primary school), episodic future thinking (e.g., imagining what my next birthday will be like), mental state reasoning or theory of mind (e.g., making inferences about what someone else is thinking about), self-referential thinking (e.g., evaluating my own thoughts and behavior), and moral reasoning (e.g., gauging the permissibility of my own or someone else’s action).

Electroencephalography (EEG) and fMRI analysts have also observed imagination during DMN activity as spontaneous insights or *aha* moments that arrive without stimulus (Kounios and Beeman 2009). This kind of imaginative activity occurs when one subconsciously ponders seemingly impossible problems in a way that triggers “novel combinatorial thinking” (Abraham 2016, 4203). This kind of thinking emerges from conditions that are open-ended or ill-defined; in these moments of freedom, the problem solver seeks

remedies through conscious acts of converging contrasting forms or through unconscious processing of disparate connectivity (Abraham 2016; Fink et al 2009; Kong et al 2020; Kounios and Beeman 2009). This imaginative dimension is commonly linked to creative works, such as surrealist art and jazz music, in which artists juxtapose disparate concepts or remote associates via serendipity, similarity or mediation (Fink et al 2009; Kounios and Beeman 2009; Mednick 1962). Abraham (2016, 4205) notes that

the wider the net that is cast to sample information needed to reach these explanations/ideas/hypotheses, the stronger the engagement of the DMN. . . . The opposite is true in the case of novel-combinatorial based imagination where the situation calls for either overriding the prepotent response or taking account of previously unconsidered perspectives—and this necessitates the added recruitment of non-DMN networks.

In other words, neuroscience has found that the powerful imagination production of new ideas occurs when the mind is relaxed. Whether that is a prerequisite condition or merely one condition among many has yet to be discovered, warranting more research to better understand what conditions best enable imaginative states.

Developing Imaginative Capabilities

Since Stein (1953) defined *creativity* in “Creativity and Culture,” the idea of novel combinatorial thinking has permeated cognitive psychological understandings of imagination and the belief that imagination can be developed through play.

Playful imaginative activities are tools that can nurture the imagination. For example, artists such as Jean-Michel Basquiat and David Bowie used the cut-up method of William S Burroughs to juxtapose lines of text or found media in order to stimulate novel compositions (Gotthardt 2019; Jones 2016).

Judson (2023) argues that imaginative tools can enhance how school leaders perceive “what is” (p 51), “what *could be*” (p 52) and how “to create ethical and inclusive communities” (p 54). She posits that “the *produce* of imagination is emotional; our own emotional

engagement and our affective connections with other people, ideas, and concepts are crucial to bountiful, fruitful organizations” (p 56). With the need for teachers to both deal with emergent challenges and build meaningful connections with learners, developing teachers’ imaginative capabilities may be a timely focus for schools when success planning.

In exploring the role of play in imagination development, Egan (2005) builds from Vygotsky’s (1978) psychological tools to offer cognitive instruments for playful activities that turn problems into stories. Egan’s stories, composed to develop imagination during a child’s literacy stage, are based on themes of reality, opposites, heroes, wonder, and a search for schema and meaning.

Egan’s capable imaginer has “an imaginative capacity for ‘grasping regularity’ . . . to perceive new forms of order in the world,” often to address deficiencies (Fettes 2010, 3). This imaginative capacity is the first of eight that Fettes outlines:

- Grasping regularity
- Grasping detail
- Grasping composition
- Grasping wholes
- Grasping possibility
- Grasping struggle
- Grasping indices
- Grasping inconsistency

Of these capacities, “three might be thought of as grasping the substantive, stable nature of the world, its ‘thingness,’ three as grasping its emergent, shifting nature, its ‘becomingness,’ and two as spanning the divide” (p 4).

Egan (2005) urges practitioners and their mentors to emotionally commit to imaginative story development in order to receive imaginative potency through emotive investments and connections. Therefore, Egan’s imaginers would possess the developed capabilities to emotionally invest themselves, identify and form meaning from deficiencies, conceive of what could be, and see how the emergent novel form might merge with the current order.

This investment of self toward grasping, forming meaning and conceiving may go beyond the cognitive to involve the body and its sensorium. For Fettes (2011), imagination emerges beyond “the mundane and imitative” (p 115) as through novel experiences or “direct, unmediated sensory encounters with the world

Imagine the Possibilities

(Reed, 1996)” (p 115). Fettes draws on Egan (1997, 169) to establish experiential understandings in the body, or somatic understanding, “something beyond language, something foundational to all later understanding.” Shusterman (2006, 2) posits an understanding of the body as “the basic instrument of all human performance, our tool of tools, a necessity for all our perception, action, and even thought.” He offers the study of somaesthetics, which

concerns the body as a locus of sensory-aesthetic appreciation (*aisthesis*) and creative self-fashioning. . . . It seeks to enhance the meaning, understanding, efficacy, and beauty of our movements and of the environments to which our movements contribute and from which they also draw their energies and significance. (p 2)

This implies that the sensorial lived experience of the body furnishes substance for inquiry and imaginative activity.

To subscribe to somaesthetics is to argue that creativity does not necessarily follow the imagination; rather, experiences in the world inform imaginative activity. Snowber (2012, 54) studies the body in motion as a “place of inquiry and its generative possibilities for deeper understanding.” Tschaepe (2021, 33) observes the intersection of inquiry and somaesthetics through discomfort as it “initiates certain inquiries, alters bodily self-conception and establishes habits that have evaluative consequences for beliefs, attitudes, and future decisions [and has] the potential for contributing to moral imagination and tools that foster empathy.”

Therefore, imaginative and creative experiences may be manifestations of the feeling body and the curious mind, reflecting what my local creative art college, NSCAD University, has long held as its motto and mandate: “Head, Heart and Hand.”³ In the concept of somaesthetics, where sensory experiences nurture the imagination, lies the possibility that the creative process (the chicken) reveals the image (the egg) that would otherwise go unrealized by the imaginer.

Imagination in Creativity

Imagination is generally considered part of the creative process (Liang and Tsorng-Lin 2014; Runco 2014).

Runco and Jaeger (2012, 94) draw on Stein, who offered “the first clear use of the standard definition” of *creativity*: “novel work that is accepted as tenable or useful or satisfying by a group in some point in time” (Stein 1953, 311).

Mednick (1962, 221) similarly defines “the creative thinking process as the forming of associative elements into new combinations which either meet specified requirements or are in some way useful. The more mutually remote the elements of the new combination, the more creative the process or solution.”

This idea of creative thinking as a product of novelty is echoed by Zimmerman (2009, 386), who sees creativity as “reflected in production of useful, new ideas or products that result from defining a problem and solving it in a novel way within a particular cultural context.”

These theories share a functional concept of imagination as the combinatorial juxtaposition of disparate concepts to form novel ideas.

For imaginative teachers, giving form to what they imagine requires engaging students in activities that are not necessarily planned or replicable.

Van Manen (2017, 820) argues that novel insights are not derived through “a qualitative program of determinable strategies, calculative schemes, codes and inventive analytic and synthesizing technicalities.” Rather, they “are ‘encountered,’ ‘discovered,’ ‘given,’ ‘found,’ or sometimes even ‘stumbled upon’” (p 820).

Collingwood’s (1967, 111) description of creative expression as “an activity of which there can be no technique” points to the imaginative activity found outside of contrived plans, patterns, sequences or routines.

Van Manen (2017, 823) shares, “An inceptual thought may happen to me as a gift, a grace—an event that I could neither plan nor foresee.” For Collingwood, imaginative ideas are distinct from reproductive or abstract concepts generated by the conscious and orderly mind (Wiltsher 2018). This imagined idea “is the deliquescence of the stuff of sensation into the matter of thought” (p 771).

In contrast, the rational intellectual idea is born of thoughts and adjusted to fit abstract orders (such as clock time versus circadian rhythms, or language versus the subtleties of bodily expressions). Too often, linear and abstract educational processes pass as creative forms while the input of senses and emotions is circumvented. For Collingwood, an imagination education requires

“space—not necessarily physical but always temporal—for the subconscious to operate and make connections outside of rational or analytical thought” (Syme 2017, 23)—an allowance for time in both the literal (clock time) and the ephemeral sense and for unknowable space. Imaginative teachers can step out of a shared reality to accommodate what may be fantastical alternatives to their normative order and real for others beyond it.

Although teachers often position imagination as a function in the service of aesthetic creativity, it is greater than that. Marković (2012, 3) outlines three dimensions of “aesthetic experience and similar phenomena” (such as imagination):

- (1) The first characteristic refers to the *motivational, orientational* or *attentive* aspect of aesthetic experience. During the aesthetic experience persons are in the state of intense attention engagement and high vigilance; they are strongly focused on and fascinated with a particular object. They lose their self-consciousness, the awareness of the surrounding environment, and the sense of time.
- (2) The second characteristic refers to the *cognitive*, that is, semantic, symbolic, and imaginative aspect of aesthetic experience: a person appraises the aesthetic objects and events as parts of a symbolic or “virtual” reality and transcends their everyday uses and meanings (eg, we “see” the bull’s head, not the bicycle parts; in theatre we are worried about the characters, not the actors, etc).
- (3) Finally, the third characteristic of aesthetic experience is *affective*. It refers to the exceptional emotional experience: a person has a strong and clear feeling of unity with the object of aesthetic fascination and aesthetic appraisal.

Highly aesthetic, expressive or conceptual creative works can be used to trigger and reconfigure open-ended, generative activity. Therefore, this stream of research advocates for deliberate provocation of imagination through aesthetic response.

In short, immersive cognitive and affective imaginative activity can be stimulated by the arts. Again, more research is required in order to better understand the conditions required for the imagination to activate and flourish, particularly in education.

Imaginative Teaching and Leading in Schools

In *Freedom and Culture*, Dewey (1988b) proposed a progressive education movement in which learning by experience, actions and democratic ideals would replace traditional autocratic approaches that preferred principles and doctrine.

Like many educators who confront the tensions between conventional educational practices and stated intentions, Dewey would come to see experience, effort and deliberation inform the imaginative capabilities required to foresee novel aspirations (Waddington 2010). He grew to value the imagination for providing routes to envision *what could be* in schools.

Dewey (1988b, 159) was concerned about institutions, such as those anchored in science and religion, where “social imagination comes to have a certain tone and color; intellectual immunity in one direction and intellectual sensitivity in other directions are the result.” He notes that “a culture which permits science to destroy traditional values but which distrusts its power to create new ones is a culture which is destroying itself” (p 172). At its extreme, the institution “demands the total allegiance of all its subjects. It must first of all, and most enduringly of all, if it is to be permanent, command the imagination, with all the impulses and motives we have been accustomed to call inner” (p 70). When traditions lose purpose and position, teachers with imaginative capabilities are vital to reimagining new cultures of possibility.

Corbett (2004) offers a sociological theoretical critique highlighting persistent systemic barriers to a Deweyian teacher. He notes that, since Dewey, education has placed all of its “eggs in the technical baskets of computer technology, brain-based research, and a curriculum meticulously preoccupied with experimentally ‘proven’ developmental notions and age-stage outcomes to fit those notions” (p 162). Teachers continue to contend with “calls for relevance, accountability in the form of clear and measurable outcomes, and economic utility of vocationalism, corporate partnerships, pragmatic skills training, and increasingly technical education” (p 165).

Teachers and educational leaders who contend with disruptions of kind (such as a pandemic) and degree (such as technological acceleration and culturally

Imagine the Possibilities

responsive pedagogies) need to accommodate archetypes that reshape their systems beyond an instrument's planned application. Corbett (2013, 8) posits that, to do so, teachers need to "imagine social life as a form of improvisation," where identity is transformed through the encounter with *the other* into something new. To find harmony between the present and the emergent *other*, teachers will need the imaginative capabilities to improvise and experiment with novel approaches (Corbett 2013; Geels 2004).

When tasked to imagine how disparate components might evolve and reconstitute into a new cohesive picture, schools benefit from teachers who have the imagination to adapt to or prepare for managing accelerating technology incursion, welcoming refugee populations, adapting to fluid gender identities and dealing with extreme incidents (such as pandemics or armed threats).

The day-to-day sameness secured by routines and policies "create[s] fixed expectations and blind spots that suppress imagination, reduce the field of vision, and prevent [teachers and educational leaders] from 'seeing things coming'" (Patriotta 2019, 1755). To ride the waves of change, March and Weil (2009, 3) suggest, leaders need "to live in two worlds: the incoherent world of imagination, fantasy, and dreams and the orderly world of plans, rules, and pragmatic action."

To teach and lead imaginatively is to orchestrate various forces and participants to work harmoniously. For Dewey (1988a, 37), teachers value the learning experience as "a social process [in which] the teacher loses the position of external boss or dictator but takes on that of leader of group activities." Imagining these roles and activities for students requires a teacher with openly constructivist, artistic sensibilities to teach through "a kind of 'interactive relationship' (Dema, 2007, 6) that involve[s] multiplicities, not just more than one individual, but individuals who are themselves multiplicities of different (heterogeneous) elements: desires, habits, capacities" (Jackson and McCullagh 2015, 184). Imaginative teachers maintain a macro-prospect beyond what is planned to consider variations on *what is*, *what has been* and *what may be* for those they serve.

Scholars have found that reimagining educational settings and practices is less of a problem with specific interventions or methods than with ontologies.

Beycioglu and Kondakçı (2021, 788) found that "the literature on change in schools suggests that, parallel to the change intervention in other organizational settings, [change interventions in schools] largely fail." They suggest that rather than thinking of a school as a place of people and things undergoing episodic change, teachers could adopt an ontology that schools undergo continual change or "becoming." To shift a school's culture from an ontology of *things* to one of *process* could alleviate the ontological insecurity teachers may have as they consider change through the improvised, unimagined and unexplored (Corbett 2013).

Fortwengel and Keller (2020, 1195) suggest that to overcome potential strategic blind spots when confronted with novel phenomena, leaders must normalize and mechanize interruptions (for example, regularly challenging or changing internal practices and assumptions) that free their organization "to regain scope for maneuver." Systemized imaginative practices not only better prepare teachers to navigate and address disruptions but also position them to design and instigate novel remedies. The flip side, of course, is that unimaginative leaders and teachers are anxious outside of path-determined routes and are rendered as cogs in the machine who respond to disruptions in a cycle of trial and error. Thus, organizational theory identifies disruption as another potential trigger for imagination, and another line of inquiry emerges—imaginative capabilities as they relate to systemic disruption and effecting change.

What is rewarded, critiqued and discouraged has an impact on innovative behaviour and change, so much so that the impact of positive and negative feedback deserves a critical understanding. Cybernetics theory observes where expansive and complex systems are "gradually, and sometimes quite rapidly, transformed by exchanges with the environment, leading to alternating periods of equilibrium and disequilibrium" (Montuori 2011, 416). This oscillation flows between negative feedback that corrects the runaway entropy of positive feedback. When continuous positive feedback leads to disorder or disequilibrium (such as when paths are determined by popular misconceptions), negative feedback corrects a course back to equilibrium. Positive feedback, Montuori observes, "can also kick-start a situation that has become stuck—the more somebody exercises, the better they feel, and so they keep

exercising” (p 415). Farmer (2022, 10) observes that feelings of deficit trigger a “matching intuition” behaviour in visionary thinkers, relating the problematic scenario to “*images, patterns, prototypes or schemas* recorded in subconscious memory and acquired through experience.” In this way, particularly imaginative teachers are inspired by disruption and “draw on disorder, in the form of the unconscious and the irrational as sources of novelty in their own work. . . . [They] believe an encounter with [disorder] can allow them to generate a higher, more inclusive ordering principle” (Montuori 2011, 415).

The implication is that from disarray and confusion, imaginatively capable teachers can not only restore a reliable equilibrium to a disrupted organization but also bring about a new order to create something better than before. Schools benefit from teachers and leaders with imaginative capabilities who collaborate to contend with the unexpected in the context of fixed patterns, routines and expectations. Teachers who seek stability should, therefore, understand that schools are all about change.

To excel in complex schools increasingly defined by change, teachers and educational leaders must have an unyielding determination to adapt to new forces through accommodation and innovation (Geels 2004). Schools are an example of a sociotechnical, rule-laden institution, in which teachers collaborate to support and direct school activity through the deployment of curricula, social policies and resources that domesticate through “symbolic work [and] practical work, in which users integrate the artifact in their user practices, and cognitive work, which includes learning about the artifact” (p 902). Teachers rely on instruments such as clocks, announcement systems, daily planners, photocopiers and classroom management software (for example, Desire2Learn, Google Classroom and PowerSchool) for coherent structures and compliant behaviours that undergird their complex education systems.

Logan (2010) contends that linearly organized systems are out of step with the new, more organically arranged world. In this climate, systems that navigate and prosper will look for leaders to “redefine both the ‘core’ and the ‘periphery’” (Manu 2006, 124) of their institutions.

The smartphone is an example of a transformative artifact that—through the work of advertisers, combined with the commercial, entertainment and

communication functions the device performs—redefines the core and periphery of institutions. The rapidly omnipresent nature of such artifacts, among other emergent phenomena, suggests that schools should want leaders and teachers who have the imaginative capabilities to grasp the complexity of novel problems and to then conceive and deploy plans and prototypes to these forces within their educative, managerial and social functions.

Whether they act passively or with intent, teachers shape contexts where people respond to disruptions and changes of both kind and degree. As Deal and Peterson (2016, 10) note, in studies of school change, researchers found that “things improved in schools where customs, values, and beliefs reinforced a strong educational mission, a sense of community, social trust among staff members, and a shared commitment to school improvement.” Moreover, in a review of educational innovations in the United States, Serdyukov (2017, 17) observed that if a society “supports innovations in education, then its educational system will continuously and effectively evolve and progress. If it does not, education will stagnate and produce mediocre outcomes.”

Therefore, teachers who are equipped with proven theories about the benefits of imaginative capabilities and how they can be developed would appreciate knowing how to shape their schools, classrooms and pedagogies to support innovation.

Conclusion

The study of imaginative capabilities among education professionals is an interdisciplinary field informed by various philosophical ideals, cognitive and behavioural processes, and organizational theories.

Although much is unknown about imagination, the literature from the philosophical, cognitive, complex organizational and capabilities perspectives suggests that teachers and educational leaders must balance the tension between the organic world of humans and the orderly forces of a complex system.

Scholars agree that novel innovations begin with imagination. When agentic, imaginative teachers sense a disruption, a deficit or disequilibrium, they engage in novel combinatorial thinking to envision a better future. Teachers and education leaders need more exposure to contexts where imaginative practices are

Imagine the Possibilities

encouraged. Moreover, imaginative activity is often truncated by realities, so work must be done to figure out how to bring it out.

Imaginative capabilities deliver an edge to teacher and leader efficacy. Teachers' ability to develop and apply their imagination can make the difference between an effective strategic response or disastrous rigidity. If teachers can cultivate the understanding and conditions that empower imagination to grow and flourish, they can begin to imagine a system in which colleagues and students can do the same (Hallinger 2011; Leithwood, Sun and Schumacker 2020; Robinson and Gray 2019; Runco 2014). Thus, rigorous research and conversations about what imaginative capabilities are and how they are developed are timely and long overdue.

Notes

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2. See note 1.

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What and And: Changing the Dialogue One Word at a Time

Amanda Clark

Recently, I was part of a group of teachers who chose to do some professional development and professional reading together. Among the many resources we reviewed, two words jumped out at me—*what* and *and*.

These words affect how we engage in dialogue with ourselves and with others. Therefore, I suggest that we should use the word *what* instead of *why* and the word *and* instead of *but*.

Here is how paying attention to these words has helped me.

What Instead of Why

Before watching the video “Increase Your Self-Awareness with One Simple Fix,” by Tasha Eurich (2017), I thought I was pretty self-aware. However, the video helped me realize how much I use the word *why*. As Eurich says, people who are “self-awareness unicorns” are few and far between, but what they have in common is how often they use the word *what* in their self-reflections, rather than the word *why*.

Now why would this matter?

Well, we must develop self-awareness in order to develop grit and resilience. *Grit* and *resilience* are buzzwords in education and parenting circles. As it turns out, people who are happy and successful in life possess both qualities (Duckworth 2013).

More often than not, when something goes wrong, we ask *why*. *Why did this happen? Why does this always happen to me? Why did they do that?*

But by asking *why*, we are looking to blame instead of adopting that growth mindset (another buzzword) that we all know will make us and our students more resilient and build our self-awareness.

By asking *what*, we reframe the situation to focus on how we can do better next time or how we can fix it in the moment. Try asking, *What can I do to make this work better? What can I change so that it doesn't happen like this again? What would make this easier for us?*

Before saying you don't know, think of what my life coach, Angela Chytracek, would say: “But what if you did know? What would you tell yourself?”¹ All of a sudden, we shift away from this negative feeling of blaming ourselves or others and move toward looking for solutions.

Imagine how changing this one word in our self-talk or the self-talk of our students could change the output in our classrooms. How could this change the dynamics or communication in your classroom?

And Instead of But

Have you ever used the word *but* when trying to give feedback to someone? Maybe to your students?

I do so often: *I liked it when you played forte in this section, but next time could you watch the rhythm in bar 5?*

Each time we use the word *but*, we input a bit of negativity into what we are saying. It feels like we are going back on the positive thing we said at the start of the sentence.

This often happens when we are apologizing to someone: *I'm sorry for hurting you, but if you had just done this or said that . . . I'm sorry for forgetting you, but I had so much going on.* You get the idea.

We often feel like we have to add that *but* phrase to explain ourselves. Does it really help the other person feel better? Does it reinforce your apology? How does adding the word *but* actually help the situation?

I read the book *Fierce Conversations*, by Susan Scott (2017), which is about transforming conversations.

Imagine the Possibilities

Among the many good points and information in the book, one idea stuck out for me as a teacher—use the word *and* in conversations instead of the word *but*.

For example, *I liked it when you played forte in this section, and let's do the rhythm like this in bar 5 next time. I'm sorry for hurting you, and I will do my best not to do it again. I'm sorry for forgetting you, and even though I had a lot going on, I will work hard to remember next time.*

As Scott (2017, 51) says, “In other words, this is true, and this is true as well. It doesn't lessen [our] challenge, but it feels better, doesn't it? To both parties. Multiple realities are not competing. They just exist. You own a piece of the truth, and so do I. Let's figure out what to do.”

Simply by changing that one word, we continue to validate the feelings of the person we are talking to. We don't undermine what we are trying to say, and the relationship is kept intact.

Michelle Mooney (2021), a therapist and blogger, agrees. As she writes, using the word *and* instead of *but* “gives more direct and constructive feedback, while better validating others' feelings [and] allows you to share your opinion without dismissing the feelings and needs of others.”

Implementation

So how do we go about making this change in ourselves and in our classrooms?

I decided to start with myself.

I wrote the words *what* and *and* on a sticky note and taped it to my computer. That is a place I look at often, so my hope was that the words would become ingrained in my brain. Basically, I was trying to retrain my brain.

What I noticed is that I started using *what* and *and* not only in my head but also in conversations with my students. Then, they, too, started using these words more often. Simply by leading by example, I was helping them develop their own positive self-talk.

I started to hear students saying things like, “I'm finding this hard, and I'm sure I'll get it eventually,” “I'm sorry I was playing around, and I'm going to work on paying attention,” and “What can make this easier so we can fix our mistake?”

Overall, the atmosphere in our classroom has become more positive. We are building resilience and positive thought into our everyday classes and conversations.

This change has also helped me with how I relate to students when problems arise, especially with behaviour concerns or social interactions. For example, if two students are having a conflict, I ask, “What can we change to come to a compromise?” or “What can we do to problem solve this?”

Additionally, it has changed how I speak with colleagues. For example, I often ask, “What can I do to support you?”

The words *what* and *and* open the door to getting help if needed and also allow space for others to express their needs.

Note

1. Angela Chytracek can be reached on Facebook (www.facebook.com/angelachytracek).

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Explore New Horizons

Art Education and Artificial Intelligence: AI Artmaking as a Way to Teach About AI Ethics

Peer-Reviewed Article

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We rely on art, freedom and creativity to spread the word, generate awareness about the harms in AI, and amplify the voice of marginalized communities in today's AI ecosystem.

Algorithmic Justice League (www.ajl.org/about/)

The dizzying and disruptive possibilities of artificial intelligence (AI) for education sprung into public awareness in late 2022 with the release of ChatGPT, a generative AI chatbot (Lavery 2022; Marche 2022).

In fact, AI is already significantly shaping how learners learn and how teachers teach across nearly every aspect of schooling (Adams et al 2022; Holmes and Tuomi 2022)—from search engines and assistive technologies (such as speech-to-text) to automated essay scoring and social robots. These AI-powered technologies have opened up novel pedagogical opportunities, but they have simultaneously introduced new and unexpected ethical quandaries.

Art and art education are not immune to the vertigo-inducing AI revolution now upon us.

In this article, we introduce AI and its intersections with education and art and provide a rationale

for taking a posthumanist approach with students, which acknowledges human-AI relations and co-agencies.

We then explore two ethical issues—deepfakes and bias in big data sets—by highlighting two artists whose work and creative perspectives inspire us: Joy Buolamwini and Hao Li. We examine how AI-supported creative exploration of contemporary ethical challenges can promote a critically informed awareness of AI. AI artmaking can shape the creative process while highlighting ethical concerns.

We conclude by suggesting ways educators in the arts can both ethically and creatively move forward with AI while increasing their students' awareness of its incorporation in their lives.

What Is AI?

Artificial intelligence, or AI, generally refers to any computing system that can perform tasks associated with intelligent beings, such as carrying on a conversation, detecting diseases or driving a car (Copeland 2023).

AI has been in our midst for decades. Some may recall Deep Blue defeating world chess master Garry Kasparov in 1997, or IBM's Watson trouncing *Jeopardy* champion Ken Jennings in 2011. Back in the 1970s, Joseph Weizenbaum's ELIZA psychotherapy simulation famously generated convincing conversations with human beings.

Weizenbaum (1976) was one of the first to raise ethical alarm bells about AI. He argued that creativity and judgment rely on human values; thus, they should not be delegated to computers.

By today's standards, ELIZA would not be considered AI. Weizenbaum built ELIZA using the pattern-matching capabilities of a functional programming language, whereas contemporary AI is driven by the autonomous decision-making capabilities of machine learning (ML), such as neural networks trained on vast data sets or intelligent agents exploring and exploiting their environment via reinforcement learning. However, the ethical concerns Weizenbaum raised almost 50 years ago still hold today.

In considering how our relationship with AI is part of a larger human-technology evolution, we look to Bernard Stiegler (2018), a philosopher of technology who argues that our intimate relationships with technology have always shaped "who-what" we are as human beings. For Stiegler, AI is the continuation of a process that began with our ancestors extending their abilities through tools. Over time, we evolved our tools—and, thereby, ourselves—to include increasingly sophisticated technologies that allowed us to download and access memories and techniques and to enhance other cognitive processes and creative capacities.

Reckoning with AI as part of an ongoing evolutionary extension and co-constitution of our creative and cognitive selves involves building a new understanding of ourselves as human-AI hybrid beings, or posthumans.

Posthumanism

Here, we approach our inquiries into AI through posthuman theory.

Posthumanism involves examining human-nonhuman relational entanglements, the nature of agency and transformative learning, highlighting the

evolving relationship between human and nonhuman entities (Adams and Thompson 2016; Braidotti 2013).

Such an approach questions the tendencies of humanism, which assumes that we humans have the sole agency to act upon the world—to change it, manipulate it and use its resources to our advantage. In fact, the opposite is also true: the world changes and manipulates us. Posthumanism sees us as dynamically formed by the materials of our environment as we influence them, and it helps avoid oversimplified, deterministic approaches to ethical quandaries.

We can re-evaluate how we interact with digital technologies through the lens of posthumanism, with the recognition that our relationship with AI is ever evolving.

Posthumanist frameworks also need to account for the ways in which both theory and AI are embedded within existing power structures and can reproduce them (Buchanan and Imbrie 2022; Dernikos, Ferguson and Siegel 2020). Tensions exist between posthumanism and decolonization (which is concerned with undoing the effects of colonialism). Some scholars argue that posthumanist thinking can reproduce neocolonialist perspectives, just in a refreshed form (Zembylas 2018). Others suggest that we can address this issue by studying AI through Indigenous ways of knowing (Indigenous Protocol and Artificial Intelligence Working Group 2020; Lewis et al 2018). Such an approach would expose the hidden humanist bias within algorithmic creations and contribute to a richer ethical and ontological understanding of human-AI interactions.

Ultimately, posthumanist perspectives raise new pedagogical possibilities and challenges for teachers, who are called on to educate students who increasingly need to be able to understand and interact with the computational world around them.

Teachers and Students as AI-Enhanced Cyborgs

Canadian teachers and students today are AI-enhanced cyborgs—they just don't realize it!

While not necessarily evoking sci-fi imaginings of machine-flesh-combined creatures, we suggest that students and their teachers daily connect to and

extend their cognitive, emotional, physical and social abilities through AI.

Further, many of these human–AI extensions are taken for granted. Increasingly integrated into students’ learning, teachers’ professional practices and school administrative processes, AI “remains camouflaged in plain sight” (Lehoux and Rivard 2021). For example, every time students perform a search using Google, they activate powerful machine learning systems, such as RankBrain and Multitask Unified Model (MUM), that work to understand the user’s meaning and intent.

Yet, as Noble (2018) has shown, these AI-based search algorithms can produce racist or misogynistic results. Selwyn et al (2023, 16) recommend that teachers pay more attention to AI technologies and their manifold “behind-the-scenes” automations.

Complicating matters are AI technologies that facilitate the production of deepfakes, such as generative adversarial networks (GANs), and large language models (LLMs) that can instantly produce high-quality text content, such as ChatGPT. These are making it nigh impossible to sort fact from fiction, or authors’ and artists’ work from machine-generated text and images.

We are already seeing calls to incorporate new digital literacies to address today’s “post-truth” media environment (Kim 2022; Maher 2022; Suying 2022). Such calls will surely become more vociferous in the “post-post-truth” world being induced by ChatGPT, DALL-E 2 and the powerful AIs yet to come (Warzel 2023).

Art teachers are uniquely situated to contribute here, especially in terms of tackling ethical issues through AI artmaking with their students. For example, teachers can engage their students in nuanced critical reflections on the complex human–AI correspondences that occur in artmaking with AI. In turn, students will be supported in developing an ethic necessary for the healthy integration of AI into society.

For decades, art education scholars have been vocal about the relationship between the digital world and art education. They have called for greater equity with respect to access (Francis 1997), greater cultural and gender representation in technology (Morbey 1997; Suarez 2000), and greater critical awareness of how social media shape behaviour (Patton 2023)—to name only a few of the many issues of ethical concern.

Further, art education research has a robust history of investigating the effects of technology on creating and learning. Black and Browning (2011) warn of the loss of learning that can occur if students do not begin by nurturing their ideas based on the world they live in. Students need room to creatively play with materials, including software. As posthumans, they must learn to engage AI technologies mindfully. Such critical engagement requires that students understand how AI works and develop data literacy while also exploring AI’s unique possibilities. Critical and playful engagement is key to developing an informed and ethical stance on these powerful technologies and provides the ground for creating new knowledge that is arresting and unique. Artmaking holds this power.

The field of AI ethics encompasses a broad range of concerns, including algorithmic racial and gender bias, loss of privacy, ubiquitous surveillance, the spread of disinformation through deepfakes and LLMs, technological unemployment, and even robot rights. Later, we will focus on two of these of these concerns: AI-generated deepfakes and gender and racial bias in data sets.

AI Art

Since its creation in 2014, GAN technology has inspired a growing community of artists.

GANs use two competing machine learning architectures—a generator and a discriminator. These architectures work to compare the parameters of an image to its reference data set. The degree to which the generated image complies with the images in the data set (the discriminator) is then used by the generator to create an iteration that more closely aligns (Ceticin and She 2022).

Brownlee (2019) uses the analogy of a game with two players. The generator player is trying to fool the discriminator player into identifying a sample (a created image, text or sound) as real or fake. In this case, *real* refers to a sample taken directly from the data set, and *fake* refers to a created image derived from what is in the data set. These two players are “learning” from the same data set. When the discriminator identifies the sample as being fake, the generator must go back and try a new sample that more closely aligns with what is in the data set. This continues until the

generator fools the discriminator into identifying the created sample as being real. In each round, both models are getting better with respect to the data set.

Many contemporary artists use GAN-based technologies to produce AI-collaborative art. Nonetheless, the degree to which GANs *create* art, rather than serving as tools for human artists, remains a topic of debate (Hertzmann 2020; Thomas 2022; Wong 2022).

Newer AI art programs, such as AICAN (Artificial Intelligence Creative Adversarial Network), are designed to generate novel artworks within a genre's parameters (Elgammal et al 2017). A major innovation is the CLIP (Contrastive Language-Image Pre-training) model, which is trained on vast data sets of text-image pairs and then synthesizes new images, allowing users to create new visual works using textual prompts (Cetinic and She 2022).

AI art technologies have raised a number of specific ethical issues. Some of those issues relate to long-standing debates in artistic practice, such as copyright infringement and increased capacity to create convincing forgeries (Heikkilä 2023; McCormack, Gifford and Hutchings 2019).

Next, we examine two AI artists who leverage AI functionality and its creative potential to explore ethical issues through an interdisciplinary approach.

Ethical Issues in AI Art

Joy Buolamwini: AI Gender and Racial Bias

Joy Buolamwini, PhD, is a computer scientist, artist and social activist creating change around AI. She refers to herself as a “poet of code” (which is also the name of her website) and is the founder of the Algorithmic Justice League.¹

Through her creative work, Buolamwini raises awareness about gender and racial bias in the large data sets used by AI to learn. Specifically, she and Timnit Gebru have shown that facial recognition software does not always recognize darker-skinned people.²

As a poet and a scientist, Buolamwini educates us about AI by creating visual and performative projects. For example, through documentaries such as *Coded Bias* (Kantayya 2020) and in the poetry and other

creative media she generates, she presses for equitable and accountable AI. She identifies the emotive power within art to inspire action toward eliminating “the pale male data problem that excludes so much of society in the data that fuels AI” (Buolamwini 2019, 68).

Buolamwini's spoken word poetry (available on her website) gives power to her message.

Hao Li: AI Deepfakes

Straddling computer science and art, Hao Li (2020) interrogates the ethical consequences of image manipulation.

Li's coding-driven algorithms enable unparalleled accuracy in deepfaking photographs and videos that circulate online as memes. Viewers are easily fooled into believing that what they are seeing is authentic. His visual-effects innovations, which involve literally “blurring the line between human and digital actors,” have been used in many Hollywood films (Manjoo 2013).

Li has been successful in his goal of democratizing AI for nontechnical users. He notes, “What's different now is it becomes very easy to [create a fake video] and it can get into the hands of anyone. The important thing is to educate people” (Pierson 2018).

Li questions how to maintain democracy in society when the veracity of information is continually in doubt (Li 2020). A decade after being featured as an innovator in the *MIT Technology Review*, he continues to raise questions around truthfulness through digital representation and to address fakes that are used for political purposes, theft or destroying reputations.

Ideas for Including AI Art in Schools

Using GANs to formulate and manipulate images is one way that school art can include AI art. Popular examples are programs that transform students' mark making into finished images and applications that add layers of artistic styles to photographs.

Many applications are limited to the manipulation of images. These activities—while very entertaining—do little to educate students about the ethical issues *within*

AI. Preparing students for their relationship with AI is limited if AI artmaking is not coupled with ethical questions and awareness of the increasingly sophisticated ways that AI can influence our behaviour.

In our own nascent explorations, we have seen that creative artistic experiments with AI can enrich creative choices. In an iterative process of both digital and material means, we are currently exploring the creation of a graphic novel, echoing digital storytelling activities that have become part of many art classrooms with the advent of multimedia (Chung 2007).

First, we generate ideas and write the story. Next, we insert segments from the story into Text2Art or DALL-E 2, which generates an image based on our input. Then, we create a new artwork based on the AI-generated image, using traditional materials (such as paint).

This is one way to interact with AI technology while meeting the need for play, which nurtures visual creativity (Black and Browning 2011). Unlike software that requires the user to select drawing or painting tools and engage in hands-on experiences similar to using traditional art materials, AI programs complete the entire image. This makes providing opportunities for play even more important. Investing time in and making decisions about creativity is a significant step in learning. By taking the AI-generated image and using it as a springboard for further artistic exploration, we incorporate AI into the work while also pursuing our own creativity.

These explorations have shown us possibilities for lessons whereby students might explore a similar method of both digital and material creation. Lessons can still retain the important learning that happens when students manipulate hands-on materials in the art classroom. We recommend that lessons incorporating AI include the topic of ethics and an iterative process of both digital and material exploration.

We also suggest introducing AI artists who highlight the ethical issues related to AI (such as Buolamwini and Li) and then exploring the technologies. The images produced with AI—from text or image prompts—can then be the basis for students to create art projects that interrupt the normative assumptions about AI-human relations.

For example, affordances within AI enable artists to create glitches within social media (Pente 2018;

Sweeny 2020), and interactive art (whereby audiences add to the art in real time) highlights social issues around the technology itself, as described by Stephanie Dinkins (*New York Times* 2018).³ Teachers can infuse their teaching with AI experiments and incorporate discussions about ethics.

School budgets may not allow teachers to provide access to the AI application of choice for the entire class; hopefully, this situation will change. Nevertheless, it is still possible to introduce students to AI artists and their work in AI ethics, thus expanding and enriching students' learning.

Conclusion

Our explorations of AI have led us to the work of artists who are drawing attention to pressing new issues provoked by AI, such as disinformation via deepfakes and the disenfranchising impacts of algorithmic bias.

The ubiquity of AI-generated images today suggests that educating students about these ethical concerns can be successfully accomplished through creating AI art. We advocate employing the technology itself to learn about, highlight and grapple with some of the ethical challenges affecting our lives as teachers and students. We attend to these issues through the lens of posthumanism.

If we consider AI not as a tool but, rather, as a collaborator in the creative process, we begin a move toward a posthuman stance. AI-collaborative artistic practices can provide a window through which students and teachers can more deeply consider their evolving subjectivity in a technological world.

Young people are frequently online and involved with AI applications; thus, theoretically robust and pedagogically sound approaches for grappling with the intensification of human-AI collaborations is now necessary in the classroom. AI artmaking may be a beneficial addition to the art classroom that both students and teachers can explore.

Resources

Here are some resources for exploring AI and art, as well as learning about the ethical issues around AI. The list is partial and subject to change as machine learning continues to expand and develop.

AIArtists.org
<https://aiartists.org>

AIArtists.org is a comprehensive site where you can access work by AI artists, glean information about current technologies and try out tools for your own exploration.

AICAN
www.aican.io

AICAN (Artificial Intelligence Creative Adversarial Network) produces novel pieces within the framework of an existing genre.

CLIP
<https://openai.com/blog/clip/>

At the time of this writing, CLIP (Contrastive Language-Image Pre-training) is the most recent and efficient application for creating images prompted by text.

DALL-E 2
<https://openai.com/dall-e-2/>

Text2Art
<https://text2art.com/>

DALL-E 2 and Text2Art are other programs that generate images using short segments of text as a prompt. Free trials are available.

Poet of Code
www.poetofcode.com
Poet of Code is Joy Buolamwini's website.

Runway
<https://runwayml.com>
Runway offers tools for text-to-art generation and the creation and sophisticated manipulation of video content. A free trial is available.

Notes

1. See <https://poetofcode.com/about/> (accessed July 20, 2023).
2. See Joy Buolamwini and Timnit Gebru's Gender Shades at <https://ars.electronica.art/center/en/gendershades/> (accessed July 20, 2023).
3. For an example of interactive art, see Sarah Newman's Moral Labyrinth (2020) at www.morallabyrinth.com (accessed July 20, 2023).

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The Strangeness of Creating Visual Art in the Immediate Present

Darrin Wilson

The image in Figure 1 was created using artificial intelligence (AI)—specifically, a text-to-image generator called Stable Diffusion (<https://huggingface.co/spaces/stabilityai/stable-diffusion/>). Despite how new this technology is, these types of programs work surprisingly well in interpreting and transforming written language into visuals.

According to Stable Diffusion’s website, every piece it generates is wholly original, even though many of them look like knock-offs of established artists’ works.



FIGURE 1

Every image I have created using this program technically belongs to me, so I now own the rights not only to the image in Figure 1 but to all the images in this article—even though I haven’t put much time or effort into making any of them.

Stranger still is the idea that if I were to continuously click Generate Image, without screenshotting any of the text-to-image creations, the images would never exist or be seen by anyone else ever again. More often than not, this thought puts me into an anxious state, and I feel compelled to save everything the program produces, whether what is on my screen is any good or not.

Theoretically, the more keywords I input into the software, the more precise and detailed the resulting images should be. But this process usually results in the software creating a grotesque vision of what it believes is in my head. The program misinterprets the written language being used and generates visuals that seem straight out of a horror film.

Hands and facial expressions are especially difficult for the program to render accurately. Just take a look at Figure 2, which was generated from the keywords *they are all going to laugh at you*. (As you can see, spelling is another issue—one that I will ignore for today.)

The use of AI image generators also involves ethical issues, such as the creation of nude images, images that promote hate and violence, and images that feature identifiable people. Because Stable Diffusion is open source, there is potential for users to modify the program down the line—making it possible for them to generate amoral, unethical or illegal content.

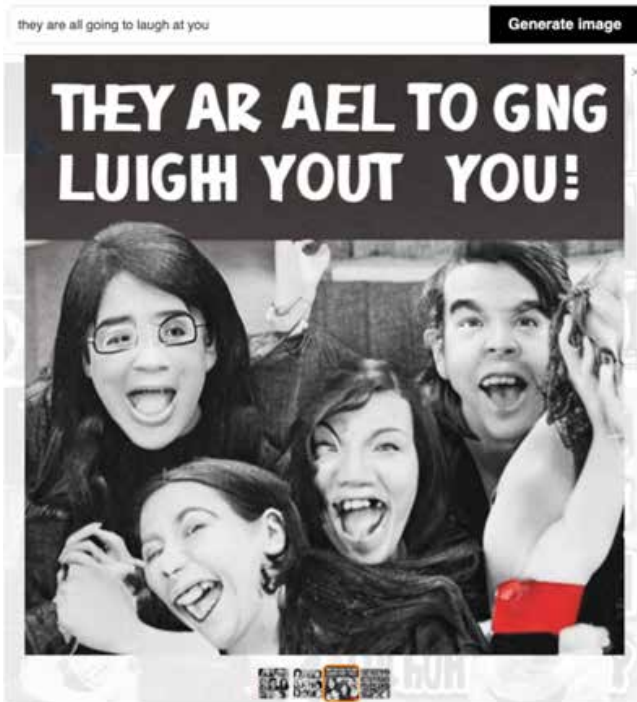


FIGURE 2

Additionally, people have already expressed concerns about their current employment, believing that these programs may make jobs in the fields of advertising and illustration obsolete. With this program, I can produce visual art quickly and rather effortlessly in any style I want, and I will, apparently, own the rights. Why would I hire someone to create a costly piece of artwork when I can rip off other artists without fear of legal recourse?

So is this the death knell of visual art as we know it? I'm not sure. But I don't think so.

I'm reminded of the conversations that circulated around the band Radiohead circa 2007. At the time, the band was challenging the status quo by using a pay-what-you-want model for their newly released album *In Rainbows*. This upset many in the music industry, who claimed that BitTorrent sites were devaluing music and that while big-name artists like Radiohead could survive this model, less popular ones likely could not. Album sales were plummeting, and the industry was collectively concerned that with the advent of these new online platforms—and Radiohead's bold album-release strategy—music would become effectively worthless.

While the music industry as a whole has never returned to the sales figures and profits of its heyday, musicians today are still able to make a living—albeit, one that is smaller than before.

Similarly, if established visual artists can continue to make a living creating art in a world where art can also be made by AI, will less famous artists still be able to eke out a livable wage? Where might visual arts belong in a world where original content can be produced for nearly free?

Again, I am not entirely sure.

At the moment, text-to-image generators seem to be challenging the inherent value we have placed on making, consuming and appreciating visual art. YouTube and BitTorrent sites have been sharing many artists', filmmakers' and musicians' works for free. Now we live in an era where AI can replicate any artist's style without ever having to credit or compensate the artist (see Figure 3). This may, in fact, lead to less work for fine artists, illustrators, graphic designers and the like. However, it may also open up revenue streams that haven't previously been thought of or explored.

Perhaps artists need to make a shift in how they identify themselves.

It's too early to know how this will all play out. What I do know is that there is value in the process of making art, not just in the products.

For example, using one's hands to manipulate various artistic media has been shown to have a therapeutic effect on the mind, calming and alleviating stress



FIGURE 3

and anxiety. Brittany Harker Martin and S Mitchell Colp (2022), of the University of Calgary, have recently researched this topic in depth. Psychologist Mihaly Csikszentmihalyi (1990) observed and named the concept of flow, which is the highly focused and productive state in which participants lose all sense of time and space. This state of mind has been shown to be healing and therapeutic for those engaged in artmaking (Martin and Colp 2022).

These aspects of artmaking are missing when one engages with AI text-to-image generation.

Being able to endlessly produce original content in a matter of minutes—in any style of art and using any combination of words—is difficult to wrap my head around. Right now, the novelty of this toy is keeping me engaged. But for how long? This new medium has captured my attention, but I feel that something is missing. This leads me to hope that text-to-image generators will not eliminate or even supplement the act of artmaking for many, including students in classrooms across Alberta.

For now, I don't think that AI art has the power to quash the human desire to connect and express ourselves creatively, even if the results of our own artmaking are not as expedient, aesthetically pleasing and effortless. For that reason, I believe that there is still value in being an art teacher today.

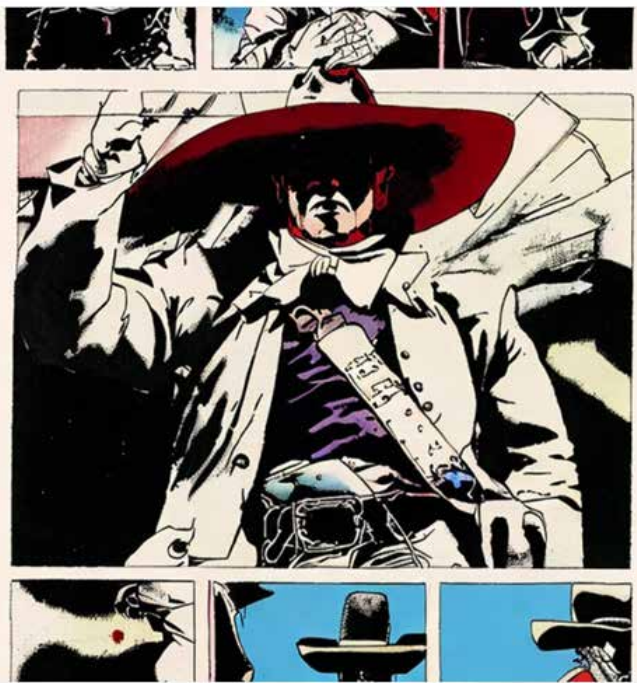


FIGURE 4



FIGURE 5

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Create Student-Centred Experiences

Integrating Career Education into the Grade 3 Curriculum: Connecting Worlds

Peer-Reviewed Article

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Karissa L Horne and Landon Gross

Teachers often hear students say that the curriculum is not relevant to their everyday lives. This view leads students to become less motivated and less engaged in learning.

In exploring how to make the curriculum more meaningful for students, this article embraces an interdisciplinary approach. Integrating career education into the core subjects helps students create deeper connections between the curriculum and the real world.

Furthermore, using the fine arts (such as writing, drawing or dancing) in integrating career education can enhance the meaningfulness of curriculum content to students. Integrating career education across curricula, with help from the fine arts, can also foster students' imagination, creativity, flexibility and self-identity, which then helps them discover their skills, interests and career aspirations.

Students should be exposed to career education at a young age to help them develop a sense of identity and learn about themselves (Magnuson and Starr 2000). Elementary students are at a prime age to commence career development (Magnuson and Starr 2000; Porfeli and Lee 2012). From a young age, children are able to explore new ideas and make choices based on their interests and preferences (Magnuson and Starr 2000). They can form opinions and make decisions about themselves and the world around them, and their life and career-planning skills

are enhanced by exposure to career-planning processes at this formative period in their lives (Magnuson and Starr 2000; Porfeli and Lee 2012).

With the early acquisition and refinement of career-planning skills, students will be more prepared to make serious decisions about their careers as they approach adulthood. Furthermore, they will be able to use the career-planning processes later in life, as 21st-century workers are likely to experience frequent and challenging career shifts with the influences of globalization and technological advances (Savickas et al 2009).

Young children have time to explore many career options, which can help decrease their uncertainty when it comes time to make career decisions (Porfeli and Lee 2012). However, they typically are not knowledgeable about the variety of careers available (Wood and Kaszubowski 2008). The world of work is shifting, with the progression of technology and society, and many jobs exist now that did not exist a century ago (Harkins 2001). Children may also have a limited view of potential careers because they have not been exposed to occupations outside of their own environment (Wood and Kaszubowski 2008).

To address these issues, career education was integrated into the Grade 3 curriculum, with the help of the fine arts. Students expanded their knowledge of potential careers and the world around them by exploring the culture and occupations of another country and comparing them with those in Canada.

Background

To situate this research, here is an overview of how career planning became integrated into Canadian school curricula.

First, Magnusson and Bernes (2002) developed a comprehensive career needs survey (CCNS) to gain a better understanding of students' career needs. The CCNS was a collaborative initiative between the Southern Alberta Centre of Excellence for Career Development, Faculty of Education, University of Lethbridge; the Chinook Regional Career Transitions for Youth Project; and the South-Western Rural Youth Career Development Project.

The CCNS aimed to capture students' perceptions of their career-development and career-planning needs (Magnusson and Bernes 2002; Witko et al 2006). It was distributed to students in 54 junior high and senior high schools in southern Alberta by classroom teachers (Witko et al 2006).

The results indicated that the most pressing needs for students were

- finding their interests and abilities,
- discovering their passions,
- gaining support for their career plans and postsecondary education, and
- gaining financial information (Magnusson and Bernes 2002).

Additionally, the results implied that beginning career planning earlier (in junior high or even before) could be more effective in assisting students through the process of career decision making (Witko et al 2006).

Given these results, it was evident that career planning was an important component lacking in students' educational experiences in southern Alberta.

Thus, a career education pilot project—Career Coaching Across the Curriculum—was created and implemented (Slomp, Gunn and Bernes 2014). Alberta Education and the Canadian Career Development Foundation (CCDF) supported the project by providing funding to train 50 preservice teachers in career education, which allowed them to go into schools across Canada and internationally to implement career education across the K-12 curriculum.

As Slomp, Gunn and Bernes (2014) outline, the pilot project included two components: a career education course and an internship experience.

First, the preservice teachers attended a career education course delivered over four weekends. The first three weekends provided them with the knowledge and skills necessary for integrating career interventions into the regular curriculum. On the fourth weekend, they shared with their classmates the lessons, unit plans and schoolwide interventions they had developed.

After successfully completing the career education course, the preservice teachers completed a 12-week internship in which they transferred their newly acquired knowledge and skills into elementary, middle or high schools across Canada and internationally.

The larger data set from this pilot project has already been published (Slomp, Gunn and Bernes 2014). This article details a specific classroom implementation from the larger study.

Context of the Teaching Environment

The career education unit was implemented in a Grade 3 classroom of 20 students. The urban K-5 public school was located in southern Alberta and had a population of 550 students.

The school offered a French immersion program at all grade levels.

The classroom consisted of 12 girls and 8 boys, aged eight to nine. One student was Spanish, and the rest were Caucasian. Most of the students came from a middle-class socioeconomic bracket.

Cross-Curricular Integration

The career education unit targeted multiple subject areas, including social studies, health and life skills, music, art, English language arts, information and communication technology, and Spanish.

Social Studies

Alberta's Grade 3 social studies curriculum (Alberta Education 2005a) introduces students to four countries around the world: Peru, Ukraine, Tunisia and India.

The class looked at all the countries, but Peru was the focus of this unit.

To meet the Grade 3 social studies learning outcomes, students were to

- expand on their “knowledge of community and citizenship by examining diverse communities in the world” (p 11);
- “be introduced to the concepts of global citizenship and quality of life” (p 11); and
- “demonstrate an understanding and appreciation of how geographic, social, cultural and linguistic factors affect quality of life in communities in . . . Peru” (p 1).

Health and Life Skills

Alberta’s health and life skills curriculum (Alberta Learning 2002) contains sections associated with life skills—life learning choices and relationship choices.

These sections relate to career education in that they explore students’ interests, as well as their relationships with others. Getting along with others and respecting other cultures are essential life skills.

To meet the Grade 3 health and life skills learning outcomes, students were to

- “use resources effectively to manage and explore life roles and career opportunities and challenges” (p 3);
- “examine personal skills and assets; e.g., physical, verbal, intellectual” (p 25);
- “examine the responsibilities associated with a variety of age-appropriate roles; e.g., family member, friend” (p 25); and
- “develop effective interpersonal skills that demonstrate responsibility, respect and caring in order to establish and maintain healthy interactions” (p 3).

Music

To fulfill outcomes of Alberta’s music curriculum (Alberta Education 1989), students were introduced to cultural music and dance from various regions of Peru.

Specifically, students were to

- recognize that “music may express our feelings” (p C.6);
- realize that “music reflects our feelings about holidays, seasons, our country and cultural heritage” (p C.6); and
- “distinguish environmental sounds” (p C.7).

Art

After looking at the different jobs available in Canada and Peru, students were asked to draw a picture of their dream job in Canada.

To address learning outcomes for Alberta’s art curriculum (Alberta Education 1985), students were to

- “record or document activities, people and discoveries” (p C.7);
- recognize that “knowledge gained from study or experimentation can be recorded visually” (p C.7); and
- recognize that “family groups and people relationships can be recorded visually” (p C.7).

English Language Arts

Students were asked to brainstorm ideas and write a paragraph about their dream job, which involved a variety of literacy activities.

Through this activity and class discussions, students met a variety of learning outcomes from Alberta’s English language arts curriculum (Alberta Learning 2000, 3). Students were to

- “explore [and express] thoughts, ideas, feelings and experiences” through a variety of media;
- “manage ideas and information”;
- “respect, support and collaborate with others”;
- “enhance the clarity and artistry of communication”; and
- “comprehend and respond personally and critically to oral, print and other media texts.”

Information and Communication Technology

Students used the computer lab to conduct career-related research.

This research involved a number of information and communication technology (ICT) learning outcomes (Alberta Learning 2000–03). Students were to

- “use electronic research techniques to construct personal knowledge and meaning” (p 4) and
- “summarize data by picking key words from gathered information and by using jottings, point form or retelling” (p 10).

Spanish

The unit allowed students to experience linguistic aspects of Peru's culture, which fulfilled Spanish (Alberta Education 2005b) learning objectives.

As Peru has a predominantly Spanish-speaking population, learning several Spanish words and phrases was appropriate in the context of the unit. This learning activity allowed students to

- greet one another in Spanish and
- “consider ideas and observations of others to discover and explore personal understanding” (p 9).

Brief Description of the Unit

This unit introduced students to the culture of Peru and gave them opportunities to compare the careers available in Peru with those available in Canada. Throughout the unit, students were reminded of the necessity of being respectful of cultural diversity and their peers' opinions.

Eight lessons were completed over two weeks. Each lesson was 30 minutes to one hour long.

Lesson 1: Introduction to Peru

The teacher introduced the students to Peru through a PowerPoint presentation. The teacher told them to imagine that they were going on a plane ride to Peru and, from the plane, they could see the regions of Peru.

The students looked at the distance between Canada and Peru. They examined Peru's demographics, geographic location, population, language, capital city and three most important regions.

The teacher explained the importance of learning about other cultures and other places in the world. The emphasis was on being respectful and appreciating other cultures.

The teacher introduced career education by stating that they were going to look at the jobs available in Peru.

Lesson 2: The Coast (Costa)

The teacher introduced students to the coastal region (Costa) of Peru.

Students learned where the region was situated and where the capital city was located. A PowerPoint presentation showed them pictures of the coast. Then, the class discussed what was found on the coast and how it compared with Canada's coasts.

After the discussion, the teacher showed students a video of a Peruvian girl, Viviana, discussing her life on the coast.¹ Then, the class discussed the differences and similarities between Canada and Peru.

This lesson also introduced the various jobs available in Peru's coastal region. The class brainstormed potential jobs, and the teacher wrote them on the board.

Lesson 3: Rain Forest (Selva)

The students examined Peru's rain forest region (Selva).

A PowerPoint presentation showed students pictures of the rain forest and people in the region. As a class, students identified the region's location and thought about possible jobs that existed there.

Students then worked in groups to brainstorm

- possible jobs that could emerge from the jungle and
- whether those jobs could also be found in Canada.

They used research from Internet searches and books to supplement their discussions. They then presented their findings to the class, and the class had a discussion about similar jobs in Canada.

Lesson 4: Andes Mountains (Sierra)

The class looked at the mountain region (Sierra) of Peru.

A PowerPoint presentation showed students pictures of the mountains.

Students then watched a 10-minute video of a Peruvian boy, named Gilber, describing his life in the mountains.² After the video, the class discussed the jobs available in the mountains and the chores the boy had to do. They also discussed what was important to the boy, his interests and his hobbies. They then completed an activity sheet with several specific questions pertaining to Gilber and his experiences (Appendix A) and discussed their answers as a class.

Create Student-Centred Experiences

The students then completed an activity about the types of chores they did at home and what was meaningful to them.

They also completed the 99-Year-Old Question activity (Appendix B), imagining that they were 99 years old and looking back in pride on their life accomplishments.

Lesson 5: Music and Dance of Peru

The students reviewed the three regions of Peru. Then, the teacher introduced them to the traditional music and dance of the three regions.

The teacher showed students a PowerPoint presentation in the first part of the class. Then, the Internet was used.

The teacher played videos showing how some of the dances incorporated an occupation (such as farmer or merchant).³

Students practised performing aspects of these dances. The dances are described in Appendix C.

This lesson gave students a cultural experience while they enjoyed the movements of the dances.

Following the dances, the class discussed the dances and the jobs associated with them.

Lesson 6: Interests

This lesson brought students back to their own areas of interest and meaning.

Students referred to the activity from lesson 4 in which they described their imagined accomplishments by the age of 99. They used the Internet to research jobs that interested them. A worksheet helped them in their research (Appendix D).

Lesson 7: Learning Basic Spanish

All the lessons in this unit incorporated basic Spanish.

Students used salutations in Spanish at the start of each day and farewell phrases at the end of the day.

This lesson introduced students to basic Spanish, such as the following phrases:

- Me llamo . . . (My name is . . .)
- Hola (Hello)
- Cómo estás? (How are you?)
- Muy bien y usted? (Very well and you?)
- Gracias (Thanks)

Throughout the unit, the teacher emphasized the importance of knowing languages other than English to communicate with people and for potential jobs (such as a translator, museum interpreter or flight attendant).

Lesson Plan 8: Career Presentations

In this lesson, students presented their career choices. Each presentation was followed by discussion and questions.

Evaluating the Unit's Effectiveness

Student learning was monitored through formative and summative assessments.

Formative Assessment

The teacher monitored students' levels of interest, participation and understanding through observations and interactions with them.

Verbal feedback from students at the end of a class or an activity also served as a way to monitor their interests and opinions.

Additionally, the teacher prompted students to explain their activities and what they had learned. This helped the teacher determine whether they were applying their newfound knowledge of Peru and career education.

Summative Assessment

After the unit, students completed an evaluation form to provide feedback (Appendix E).

The form asked students about the following:

- Their participation in the activities
- Their perception of the helpfulness of the activities
- What they liked most about the unit and what could be improved
- Their perception of the unit's adherence to four standardized learning objectives

Results

Formative Assessment

Students were excited and engaged throughout the unit. They asked for more research time, and it was their idea to present their research. They were enthusiastic and willing to share their ideas and thoughts with their peers. They were also respectful and encouraging toward each other. Their excitement about the unit made it easy to engage them.

Summative Assessment

All 20 students completed the evaluation form. Their responses are detailed in Tables 1, 2 and 3.

TABLE 1. Completion of Activities

Activity	I didn't do it	I did it
Discussion about careers in the three regions of Peru	1 (5%)	19 (95%)
Video of Gilber in Peru	1 (5%)	19 (95%)
Questionnaire about Gilber's jobs in the mountains	1 (5%)	19 (95%)
99-year-old question	0 (0%)	20 (100%)
Discussion about students' interests and jobs	0 (0%)	20 (100%)
Research about students' careers	0 (0%)	20 (100%)

Note: 98% of the students completed all the activities.

TABLE 2. Helpfulness of the Activities

Activity	Not good at all	Good	Great
Discussion about careers in the three regions of Peru	0 (0%)	4 (21%)	15 (79%)
Video of Gilber in Peru	0 (0%)	3 (16%)	16 (84%)
Questionnaire about Gilber's jobs in the mountains	0 (0%)	7 (37%)	12 (63%)
99-year-old question	0 (0%)	6 (30%)	14 (70%)
Discussion about students' interests and jobs	0 (0%)	4 (20%)	16 (80%)
Research about students' careers	0 (0%)	5 (25%)	15 (75%)

Note: 100% of the students rated the activities as either good or great.

TABLE 3. Learning Outcomes

Learning outcome	I don't agree	I'm not sure	I agree
This lesson, unit plan or schoolwide intervention helped me to learn a lot about myself.	0 (0%)	7 (35%)	13 (65%)
This lesson, unit plan or schoolwide intervention helped me to learn a lot about careers.	0 (0%)	0 (0%)	20 (100%)
This lesson, unit plan or schoolwide intervention made me excited about what I could do with my life.	0 (0%)	3 (15%)	17 (85%)
This lesson, unit plan or schoolwide intervention made me want to learn more about different careers.	0 (0%)	5 (25%)	15 (75%)

Note: On average, 82% of the students agreed that this unit met all the objectives.

Discussion

This unit was extremely well received by students:

- 100 per cent rated the activities as *good* or *great*.
- 65 per cent indicated that the unit had helped them learn a lot about themselves.
- 100 per cent felt that the unit had helped them learn a lot about careers.
- 85 per cent reported that the unit had made them excited about what they could do with their lives.
- 75 per cent indicated that the unit had made them want to learn more about various careers.
- 82 per cent felt that all the standardized learning outcomes had been achieved.

These results suggest that the unit was highly successful and that career education can be successfully integrated with multiple subject areas in Grade 3.

Several students could relate to the descriptions of Peru, as they had friends or relatives who had visited or originated from there. Guest speakers, who were the relatives of students, piqued students' curiosity and interest to foster their engagement with the unit. They brought objects and pictures to share with the students. The teacher remarked that the students expressed awe at being able to see and touch cultural items made by Peruvian artisans. This excitement and hands-on experience likely account for the high levels of satisfaction that students indicated in the evaluation.

Students were learning valuable career-planning and decision-making skills that they would be able to apply continuously as they gained a greater understanding of their own interests, skills and aptitudes. With this foundation in place, it would likely be easier for them to transition into more-serious career planning as they got older and started to weigh their options.

One challenge of this unit was that some students had difficulty with the Internet research. Not all students at this age are familiar with technology and electronic search methods; therefore, additional support may be needed. The teacher addressed this issue by reviewing technology with the students at the beginning of the lesson and again as needed.

Some students found it challenging to engage in discussions about different and even conflicting opinions about the quality of life in another country.

This reinforces the need for ongoing class discussion about controversial topics, as students can then learn the necessary self-regulatory skills to respectfully interact with peers who have differing opinions. The teacher also dealt with this issue by asking questions on a one-on-one basis to allow each student to articulate their opinion. At the beginning of each day, the teacher reminded students of the importance of being respectful of differences.

Another issue was the limited time available, as it was difficult to complete all the lessons in two weeks. Given more time, the teacher would have devoted more time to self-exploratory activities and to other countries in addition to Peru.

Conclusion

The positive results of this study reinforce the concept that it is never too early to introduce career education to children.

Career education can be introduced in many ways. As this study shows, incorporating social studies and discussions of other cultures and countries are effective means of exploring career education with young students.

Students benefit from exposure to new career options and from learning about careers beyond those available in their own communities. Through exploring careers available throughout the world and comparing them with careers in Canada, students can appreciate and respect diverse careers and diverse backgrounds. This plays a major role in developing their relationship skills, as they learn to navigate different viewpoints.

Additionally, children need to discover their personal interests in order to think critically about careers. Even though they are early in their development, finding their career interests can help them learn to make career decisions. When children learn from a young age what they like and what their interests are, it becomes easier for them to consider the possibilities of various careers.

Integrating career education into the Grade 3 curriculum proved successful. Students were engaged and curious to explore options according to their interests. They welcomed the research component of the unit, and the use of technology made them aware

that they could find information about many careers online.

Taken together, this unit helped students develop self-exploratory skills and encouraged them to find ways to become self-aware, knowledgeable about diverse careers and interested in finding personally meaningful careers.

Notes

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1. *In Peru with Viviana* is a 2005 video that is an Alberta authorized resource for Grade 3 social studies. It is no longer available on the LearnAlberta.ca website.

2. *Gilber in Peru* is a 2005 video that is an Alberta authorized resource for Grade 3 social studies. It is available on the LearnAlberta.ca website at www.learnalberta.ca/Search.aspx?lang=en&search=peru&grade=Grade+3&subject=Social+Studies (accessed May 26, 2023).

3. Only one video is still available (Pittalugga 2007). Students also watched videos from the About Peru History and My Peru websites, which no longer exist.

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Create Student-Centred Experiences

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Appendix A: Gilber in Peru

After watching the video *Gilber in Peru*, answer the following questions regarding Gilber's chores on the farm.

Where does Gilber live?

What sorts of jobs did Gilber have to do at home?

After observing his life and community, what do you think is important for Gilber?

What are his interests/hobbies?

Appendix B: The 99-Year-Old Question

Think about the things you want to do and the things you want to have by the time you are 99 years old.

What are the things you have accomplished? Did you make your dreams come true? What were they?

Appendix C: Dances of Peru

Coast

Marinera

Courtship dance: a romantic dance performed by a couple in graceful costumes that re-enacts traditional Peruvian courtship

Rain Forest

Danza de la Selva/Shipibo

A traditional dance that depicts the work, hunts and wars of the rain forest region; dancers wear face paint and dance with items such as weapons or branches in their hands

Mountains

Huaylash

A tap dance with colourful costumes that represents the agricultural tasks performed by farmers

Capac Qolla

Represents legendary merchants who brought products for trade; dance is performed by twisting strands of wool into thread

Appendix D: What Is My Future Career/Job?

Name: _____

My future job is _____

I picked this job because _____

What are the duties for this job?

This is a picture of me doing my job:

Appendix E: Evaluation Form

Thank you for participating in this lesson/unit plan/schoolwide intervention! I would like to know if it was helpful and how it could be made better. Please answer the questions on this sheet to help me with this.

Part 1: Please let me know if you did the activities.

Activity	I didn't do it	I did it
Discussion about careers in the three regions of Peru		
Video of Gilber in Peru		
Questionnaire about Gilber's jobs in the mountains		
99-year-old question		
Discussion about students' interests and jobs		
Research about students' careers		

Part 2: Please let me know if you thought the activity was helpful by circling whether you thought it was *not good at all*, *good* or *great*.

Activity	Not good at all	Good	Great
Discussion about careers in the three regions of Peru			
Video of Gilber in Peru			
Questionnaire about Gilber's jobs in the mountains			
99-year-old question			
Discussion about students' interests and jobs			
Research about students' careers			

What did you like about this lesson, unit plan or schoolwide intervention?

How could this lesson, unit plan or schoolwide intervention be made better?

Part 3: Please tell me how much you agree with the following statements by putting a checkmark in the box that best tells me how you feel.

	I don't agree	I'm not sure	I agree
This lesson, unit plan or schoolwide intervention helped me to learn a lot about myself.			
This lesson, unit plan or schoolwide intervention helped me to learn a lot about careers.			
This lesson, unit plan or schoolwide intervention made me excited about what I could do with my life.			
This lesson, unit plan or schoolwide intervention made me want to learn more about different careers.			

Thank you very much for your help!

The Magic of Connection: Puppetry in the Drama Classroom

Molly Danko

Something truly magical happened this school year. I walked into my drama classroom to find my students playing.

My high school students.

My teenage, half-asleep-for-first-block students.

I smiled and watched them for a few minutes. In that moment, I was reminded of the magic of theatre—how what our students need right now, in an age of screens and isolation, is to connect. To engage with their imagination. To explore their childlike selves. To create something unusual. To play.

This moment of connection happened during our puppetry unit. There is something magical about this unit, and I would love to share some of that magic with you.

A unit my students initially groan about has become a favourite of many over the years. I've used this unit at various times throughout the school year, but I've found it particularly rewarding at the beginning of the year, as an introduction to movement and storytelling. It also works well for building students' ensemble skills.

Here is a brief overview of how you can implement a puppetry unit of your own. Depending on your objectives, you can achieve a number of outcomes through puppetry. You may find that you want to add more exploration of movement and create a larger

unit, or pare it down to a couple days or a week. A flexible unit overall!

Introducing Puppetry

Before I introduce the concept of puppetry to my students, I like to start with some Laban work. Even doing a simple Laban walk or exploration of Laban's efforts is a wonderful way to get students moving and thinking about the principles of puppetry naturally.

I typically use a Google Slides presentation on the history of puppetry, cultural variations, and puppet companies and puppeteers in Alberta (such as the Old Trout Puppet Workshop and Ronnie Burkett).

We also look at videos of puppetry used in media, dance and theatre and watch a TED Talk by puppeteers from the Handspring Puppet Company, who created the puppet horses used in the play *War Horse* (Kohler and Jones 2011). You can create a worksheet to go along with this, depending on what you want to assess.

This stage of the unit is a great introduction to puppetry and how to bring an inanimate object to life.

Building the Puppets

The YouTube channel of the National Theatre in London contains an abundance of fantastic drama resources. There you will find a masterclass with theatre company Gyre & Gimble that demonstrates

how to build puppets and explores ways to use them.¹ I first fell in love with puppetry through this masterclass.

The puppets in the masterclass are not the typical hand puppets. Instead, they are life-sized stick figures made of large sheets of brown paper.

I show my students the video about how to make the puppets (National Theatre 2015). Then we walk through the process together.

All you need is brown paper, masking tape, scissors and a bit of patience!

Exploring the Puppets

In this stage, students get used to the puppets and build relationships with the puppets and with each other.

I first explain to students how the puppets work.

It takes three people to manipulate one puppet:

- One person on the neck and one arm
- A second person on the waist and the other arm
- A third person on the feet

The breathwork comes from the performer on the neck. This person creates the sound and look of the breath by pushing down on the puppet while the person holding the waist resists the pressure.

Focus is a team effort. All eyes should be on the puppet. This helps the performers disappear and allows the puppet to take centre stage.

To show that the puppet is interested in something, the performers have the puppet move closer to the item, tilt its head, look at the item up close and so on.

Weight starts at the feet and moves upward. If the puppet's feet are floating above the ground, that gives a different impression than if the feet are firmly grounded beneath the puppet. Weight comes through with every movement—jumping, walking, swimming or standing. Always remember that gravity is a force against the puppet.

After explaining how the puppets work, I have my students start to work with the puppets in groups of three. I rotate the groups at least once per class. If your class is not divisible into groups of three, allow the extra student in a group to be another character in the scene.

Take some time to show students the Gyre & Gimble masterclass so that they can see how the puppets are used and how quickly they come to life.

Give your students a chance to explore and play.

One way to explore puppet movements is a hallway walk. Students imagine a grid on the floor. Then, they walk up and down the “hallways” with the puppet, without cutting across the room diagonally.

Call out various scenarios. For example, students can imagine that the puppet is running late; that it's a spy, a ballet dancer or an animal; that it's walking through a haunted house; or that it's on its way to a business meeting.

Give them time to explore how to create these movements with the puppets.

Creating Puppet Scenes

Entrances and Exits

One at a time, have students make the puppets enter a space.

As the puppets come into the space, students should show the audience where the puppets are and how they are feeling.

This exercise gets students thinking about the principles of puppetry.

Depending on their level, you can also give students a slip of paper indicating a location or an emotion to act out.

Scenes of Life

With the puppets, each group recreates a moment of life that they know well (such as kicking a soccer ball, brushing teeth, running to catch a bus or opening a locker).

They then present the scenes to the class for feedback. Focus the feedback on the principles of puppetry.

Puppet Meet

Have two puppets enter from opposite sides of the space. The groups can plan this or improvise.

The puppets should have a vocal reaction to each other (shocked, scared, happy, sad).

How does breath play into a character?

Final Scene with Music

Students create a nonverbal scene with the puppets, choosing a song that embodies the mood. It can

be a song that fits naturally in the scene (such as a song at a school dance) or a song that is acting as a musical score behind the scene.

If you would like to access any of these resources or to collaborate and discuss these ideas further, feel free to contact me at drama@fineartsata.ca.

Note

1. The playlist is available at www.youtube.com/playlist?list=P_LJgBmjHpqgs41un5eRyQFIYrL42qWjE5U (accessed August 14, 2023).

References

- Kohler, A, and B Jones. 2011. "The Genius Puppetry Behind War Horse." TED Talks. YouTube video, 18:19. <https://youtu.be/h7u6N-cSWtY> (accessed August 14, 2023).
- National Theatre. 2015. "How to Make a Puppet." YouTube video, 3:28. <https://youtu.be/pFEnZfS5IXQ> (accessed August 14, 2023).

Molly Danko, BA/BEd, is the FAC's drama representative. Since 2016, she has taught drama at the secondary level with the Edmonton Catholic School District. She also has over a decade of experience performing in, directing and producing work in the

Make Magic with Masking!

Helen Berscheid

When creating a painted work of art, a sense of wonder arises that is hard to duplicate. The paint itself causes happy accidents, and paint drying can reveal colours that didn't appear to be present at first.

But some aspects of using a liquid medium can cause problems right from the start. For example, how do you retain a brilliant white area on the substrate, or that perfect shade of red when doing overpainting?

Masking is a technique that allows you to cover areas of your artwork to protect them. This is a temporary method, depending on the paint used and the fragility of the substrate.

Some examples of masking materials are masking tape (or painter's tape), adhesive contact paper (such as Mactac), liquid mask and stencils—which can all be used in varying ways.

Students can use these methods at any age.

Masking Tape

Masking tape is most commonly used to create a straight line and rigid edges (such as a horizon line). It can be used with acrylic paint, oil paint or watercolour paint, on canvas or on paper. It can also be used with drawing in many media.

Remove the tape as soon as possible, before the paint dries. Left too long, the tape can tear the paper or even pull the overlaying paint off the work. Slowly pull the tape straight back, not up. If the paper begins to tear, start from the other end and go slowly! Tape can be used multiple times to avoid waste.

Another application for masking tape is to tear the edges of the tape for a ragged edge (such as hills or shaggy fur). This creates a more natural and irregular edge.



Adhesive Contact Paper

Adhesive contact paper also creates a rigid edge. It can be used for repeat images, as well as both positive and negative parts of the same image (as in the tree below).

It also works well if you want to overprint with a stamped design.

Always retain the backing to store the mask and use it multiple times.



Liquid Mask

Liquid mask must be applied to a dry surface and then allowed to dry completely before any colour is applied. Make sure the composition is fully worked out before using the product.

Apply the liquid mask with a brush, calligraphy tip or stick, depending on the texture.

When you have finished the whole painting, use the edge of an eraser, your fingernail or a dull knife to loosen the edge of the liquid mask. Then, roll the mask off the paper.

If the mask is left on too long, the surrounding paint may be pulled up with it when it is removed.

The substrate needs to be fully dry before removing the mask.

Stencils

Stencils can be used as temporary masks placed over certain areas and immediately painted over with a blotting or dabbing technique. You could also use a roller on flat surfaces.

This process creates layering effects and adds interest with specific design details.

Try some of these methods to see which one has the desired effects. Enjoy using them with your classes!

Helen Berscheid is a retired teacher and guest teacher in Calgary who has been a practising artist for over 45 years. She enjoys painting, drawing, textile works and crafts of many kinds. She teaches workshops in painting and textiles and travels all over the world for inspiration.

Spider-Man: Into the Spider-Verse *Lesson Plan for Grades 5 and 6 Music*

Kim Friesen Wiens

This lesson plan for Grades 5 and 6 music incorporates characters and music from the 2018 animated film *Spider-Man: Into the Spider-Verse*.

Specific Learner Expectations

This lesson explores the following concepts and skills from Alberta's elementary music program of studies (Alberta Education 1989):

- “Repetition and contrast give unity and variety to form in music” (p C.5).
- “Move to illustrate phrase, repetition, contrast, AB, ABA and rondo patterns, introductions, interludes and endings (codas), as appropriate to the psychomotor development of the students” (p C.8).
- “Choreograph and perform a contemporary dance form; e.g., in the style of videos, air bands” (p C.8).

Lesson Objectives

- Students will move to a song using movement patterns determined by the class (whole-class movements), demonstrating an understanding of form (repetition and contrast).
- Students will move to a song using movement patterns determined by a small group (small group/partner movements), demonstrating an understanding of choreography (in particular, creative

movement concepts of levels, pathways and directions).

- Students will identify the form of a piece of music.

Materials

- Original theme song from the *Spider-Man* (1967) animated television series (<https://youtu.be/ptXzUIDXOi4>)
- Images of Spider-Man poses (www.pinterest.ca/pin/805722189569080327/ or www.deviantart.com/amarielovesundertale/art/Spider-Man-poses-834175443)
- Guide to *Spider-Man: Into the Spider-Verse* characters (spider-heroes) (www.thrillist.com/entertainment/nation/spider-man-into-the-spider-verse-spider-man-characters)
- “Sunflower,” by Post Malone and Swae Lee (<https://youtu.be/ApXoWvfEYVU>)
- Kidz Bop “Sunflower” dance-along (<https://youtu.be/Drgcw50NIOQ>)

Opening Activity

As students enter the classroom, quietly play the original theme song from the 1967 *Spider-Man* animated television series on the recorder.

Once the students are seated, ask them if they recognize the song. Play it again if needed. Explain that the song is old but well known. (Many parents and

even grandparents who grew up in Canada or the United States will know this song.)

Show students the YouTube video of the original theme song.

Procedure

45–60 minutes

Hopefully, all the Spidey-senses are tingling now and students are ready to spin their own webs.

- Have students work in pairs. Depending on the group, students can choose their own partners or you can do so.
- Display images of Spider-Man poses on the board. Using these images and those seen in the YouTube video of the original theme song, the pairs discuss and try out several poses. Ultimately, each pair selects one pose to share with the class.
- Have each pair share their Spider-Man pose with the class (if they are comfortable). Keep track of poses to use later in the lesson.
- Have a class discussion about superheroes. Who is represented and who is not? Show students images of the spider-heroes from *Spider-Man: Into the Spider-Verse*. Ask students, Why is it important to have diverse images for our spider-heroes? How important is it to see yourself represented in characters from movies, TV shows and books?
- Watch and listen to the YouTube video of “Sunflower,” sung by Post Malone and Swae Lee. This song is played twice in *Spider-Man: Into the Spider-Verse*. Have students listen carefully for any repetition in the song, as well as for whether the song has an introduction or a coda.
- Have a class discussion about the form of the music. Work with students to get them to identify the form, even if it means listening to the song a second time (without video).
- Review the Spider-Man poses. Ask students, Are there any poses from the other spider-heroes that we want to add or try out? Are there places where it would make sense to use the poses? Students can explore this with their partners.
- Listen again to the chorus of “Sunflower” as a class. Ask students, Could we come up with some movement to do as a class for that part of the

song? Try out some ideas. (You can use the Kidz Bop video for ideas, if needed, but be sure to first ask students to come up with their own ideas.)

- For the song’s introduction, have students move through general space. They can mirror their partner or move on their own (considering pathways, levels and directions). Contrast this with the pre-chorus, where students move individually in self-space.
- For verses 1 and 2, pairs decide what they want to do. They can do the same movement for both verses or different movements for each verse. Can they bring in a Spider-Man pose? Do they want to try mirroring? Or bring in props (such as ribbons or scarves)?
- Have each pair share their movements with another pair and then with the whole class. This is an opportunity for assessment. Create a rubric with students that they can consider as they work on their movements. (See the appendix for an example.)
- For another assessment option, when sharing movements, pairs could take video of other pairs as they are performing and then review the video together. Ask students, What did you notice? What worked well? What would you change? Depending on the time available, this process can be very short or extended for further assessment (individual, peer and teacher assessment).
- Have students spread out and individually choose a Spider-Man pose to begin and end the song.
- Review the form of the piece and practise with students before putting it together for the performance.

Final Form of the Piece

Spider-Man poses—scattered in general space
Introduction—moving through general space
Verse 1—moving with a partner
Pre-chorus—moving individually in self-space
Chorus—moving as a class
Verse 2—moving with a partner
Chorus—moving as a class
Coda—moving into a Spider-Man pose and freezing

Extension

A possible extension for this lesson would be to learn how to play the original theme song from the *Spider-Man* animated television series. (For an Orff arrangement, e-mail me at editor@fineartsata.ca.)

Students could work on the melody and the accompaniment and add some kind of introduction.

Could they select instruments based on timbre to match the music? Would there be a way to incorporate some of the movements or Spider-Man poses into the song?

Reference

Alberta Education. 1989. *Music (Elementary)*. Program of studies. Edmonton, Alta: Alberta Education. Also available at <https://education.alberta.ca/media/482116/elemusic.pdf> (accessed August 14, 2023).

Kim Friesen Wiens has taught movement for Orff levels I, II and III at the University of Alberta since 2014.

Appendix: Sample Movement Rubric

When creating rubrics with students, I like to use a rating scale of 3-2-1.

I write the rubric on the board, using students' words. They hear it and see it, and then I reinforce it before we assess. This gives students multiple opportunities to understand what I am looking for in the assessment.

For full marks—a 3—what would I need to see? As a class, we discuss this. For creative movement concepts of levels, pathways and directions, I would need to see high, medium and low levels; straight, curvy and zigzag pathways; and up, down, left, right, forward and backward directions. But what else would I need to see? Filling the whole movement space or staying in self-space, changing movements at the proper time, and so on.

What would a 2 look like? As a class, we discuss how a 2 would involve similar components as a 3 but missing some of the pieces.

What would a 1 look like? As a class, we discuss how a 1 would involve many missing components.

	3	2	1
Levels	Shows all levels (high, medium, low)	Shows some levels	Uses few to no levels
Pathways	Shows a variety of pathways (curvy, straight, zigzag)	Shows some pathways	Uses few to no pathways
Directions	Shows a variety of directions (up, down, forward, backward, left, right)	Shows some directions	Uses few to no directions
General/self-space	Moves through general space and/or fills self-space	Uses some of the space	Little use of space
Changing movements	Fully demonstrates when to change movements	Mostly demonstrates when to change movements	Does not demonstrate when to change movements

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Pieces should be 1,000–4,000 words long and should be accompanied by a brief (50 words) author biography. Submit signed permission forms for student work or photographs of students, as well as permission to use any photos that are not yours.

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- Use author–date style for in-text citations and the reference list.
- Do not use running heads.
- Use endnotes instead of footnotes.

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