

Project-Based/Inquiry-Based Learning in Grades 5-12 Music Classrooms: Enhancing Alberta Education Music Program of Studies

Author: Merlin B. Thompson Ph.D., M.A., B.Mus.

Target group: Grades 5-12 Music Instructors

Date: March 2025

Version: 3.51

This Resource Manual is designed to assist Grades 5-12 music teachers with using Project-Based/Inquiry-Based Learning to enhance Alberta Education's Music Program of Studies.

What do Queen, the brain, and Disney have in common? They're all topics students have chosen for Project-Based/Inquiry-Based Learning.

Who is this for? Grades 5-12 music instructors, band directors, and choral conductors.

What do student examples look like? Visit: <https://www.teachmusic21c.com/projects>

This is a lengthy document. Don't hesitate to jump to the most practical chapters in this document's latter half.

Table of Contents

| | |
|---|-----------|
| I. INTRODUCTION | 3 |
| II. TEACHER’S FRAME OF REFERENCE..... | 10 |
| III. LEARNER-CENTERED ENVIRONMENTS | 15 |
| IV. COLLABORATIVE & INDIVIDUAL..... | 24 |
| V. STUDENT ENGAGEMENT | 26 |
| VI. SUGGESTED TOPICS | 29 |
| VII. SUSTAINED INQUIRY | 30 |
| VIII. KNOWLEDGE-CENTERED ENVIRONMENTS..... | 35 |
| IX. PUBLIC PRESENTATIONS..... | 40 |
| X. ASSESSMENT-CENTERED | 42 |
| XI. TIMELINE..... | 53 |
| XII. FAQs..... | 55 |
| XII. RESOURCES | 57 |
| ABOUT THE AUTHOR | 65 |
| BIBLIOGRAPHY..... | 66 |

I. Introduction

Over the previous 30 years, education research has generated impressive advances in teaching and learning. This research suggests there are new ways for teachers to facilitate learning that can powerfully affect the quality of their students' lives and make it possible for students to develop a deep understanding of subject matters. The story we can now tell about music teaching and learning is more interactive and integrated than ever before, with promises of continued and dramatic evolution in upcoming generations.

This Resource Manual centers on the remarkable pedagogical developments related to Project-Based and Inquiry-Based Learning. With a target audience of Grades 5-12 music instructors, band directors, choral conductors, and orchestra directors, the purpose is to provide music educators with Professional Development specifically formulated to enhance Alberta Education's Music Program of Studies. Two goals are primary – firstly, to assist instructors with facilitating Project-Based/Inquiry-Based explorations of students' Everyday Musical Connections; and secondly, to support music educators' professional work through exploration, collaboration, shared experiences, reflection, discussion, and critical evaluation.

Everyday Musical Connections

By the time most students reach late Elementary School or Junior High School, it's quite likely they have a huge amount of musical experiences. Some students have learned to play a musical instrument or sing. Others have experience with music theory and history. Others have minimal exposure to music instruction and performance. Yet, there's one thing that's universal to all students no matter how formal or informal or limited their musical background: it's their own Everyday Musical Connection – the individual and multifaceted relationship that every person has with music.

Every person has a multifaceted and unique relation with music regardless of age, socioeconomic standing, geographic context, or education. Music may at times be a companion, a diversion, an interruption, a refuge, a catalyst, and a reminder. Our connections with music come in all sizes and shapes from the emotional to the intellectual, the physical to the spiritual, the individual to the collective. Of course, learning to play a musical instrument and sing can contribute in meaningful ways to an individual's relation with music. Yet, when we consider the space music occupies in our lives, a breadth and depth of everyday musical experiences come to mind –

like the way a favourite tune randomly pops into your head; how elevator music sticks with you for the rest of the day; the creation and sharing of musical playlists; how you respond when music intensifies cinematic drama; how music carries meaning in TV and radio advertisements; music in religious, sports, and recreational contexts; not to mention how listening to and performing music can span everything from intense personal involvement to complete distraction. In other words, we all experience a broad scope of Everyday Musical Connections.

So, what does this mean for Grades 5-12 music educators? How might schools open up spaces for students to build on their own Everyday Musical Connections?

Alberta Education Program of Studies

In its Program of Studies for Music Education, Alberta Education identifies how the “systematic development of musical skills, knowledge and perception contributes to the total development of the individual”, and suggests the following Goals of the Secondary Music Program:

- To develop skills in listening, performing and using notational systems.
- To encourage students to strive for musical excellence, individually and as members of groups.
- To enable students to understand, evaluate and appreciate a variety of music.
- To provide experiences that will foster the development of self-expression, creativity and communication through music.
- To make students aware of the history of music and the implications of music in our society.

What seems opportune is that students may achieve each of the above goals through explorations of their own Everyday Musical Connections. This means Grades 5-12 music teachers may enhance their band, choral, or general music programs by delving into students’ Everyday Musical Connections as a springboard for broadening and refining musical skills, knowledge, historical and cultural perception, as well as encouraging musical excellence and self-expression. The benefit of incorporating students’ Everyday Musical Connections as an active

aspect of Grades 5-12 music programs is that such investigations highlight the immense value in students' ownership and relationship with music. In doing so, school music programs increase the likelihood that students not only gain new musical knowledge and skills for learning, but also include music in their lives more often, more deliberately, or more enthusiastically than would otherwise have occurred without formal music education. Students effectively expand their ownership of and relationship with music.

Project-Based & Inquiry-Based Learning

Project-Based Learning (PBL) and Inquiry-Based Learning (IBL) are two overarching educational terms that intersect and overlap through their common focus on experiential learning through students' active exploration and investigation. PBL and IBL represent a departure from traditional western educational systems in which teachers direct or transmit knowledge to students through teacher-lecture, rote memorization, or drill-based methods. Teaching in a PBL/IBL approach is about organizing authentic experiences that prompt students to actively participate in their own learning, rather than giving students a series of facts to learn for an exam or tasks to master for a performance. In a PBL/IBL setting, students experience firsthand the difference between passively acquiring information and actively getting information from their own real-life experiences; and teachers employ a blending of roles including facilitator, collaborator, provoker, mentor, guide, and resource.

Comprehensive PBL/IBL Characteristics

- *Teacher's Frame of Reference.* Teachers' own knowledge, skills, attitudes, beliefs, and life experience have a direct impact on the classroom environment.
- *Learner-Centered Environments.* Teachers pay careful attention to the prior knowledge, skills, attitudes, beliefs, experience, and interests that students bring to educational environments.
- *Collaborative & Individual.* Students may work in a team environment or as individuals.
- *Student Engagement.* Students' voice and choice are prioritized in identifying meaningful topics, questions, areas, or avenues for exploration and investigation.
- *Sustained Inquiry.* Teachers guide students in exploring and questioning learning experiences inside and outside the classroom.
- *Knowledge-Centered.* The purpose of teaching and learning is

- that students acquire competency and make sense of concepts, procedures, and knowledge related to a particular domain.
- *Public Presentation.* Students demonstrate the social accountability of their work and open their presentations to further discussion from peers, teachers, and community.
 - *Assessment-Centered.* Formative and summative assessment strategies assist students in preparation, revision, presentation and reflection on their projects. Assessments allow teachers to measure what students have accomplished over a designated period of time and shed light on their own teaching practice.

PBL/IBL mirrors the natural inclination we have for learning in ordinary everyday life – the way people’s curiosity or innate desire to learn compels them to learn about how things work, learn how to do things, and make sense of the world around them; the way people use their intuition and reflection to distinguish between learning that is valuable and learning that is not; and the way people’s learning is reflective of where they are and who they’re in contact with. Just think of how preschoolers gradually put together their own picture of the world through experimentation and asking endless questions on everything around them. How through trial and error, teenagers may become remarkably skilled in the most idiosyncratic activity. How adults may take on the challenges of a new hobby or pursue their own list of the unexplored with dedication and intent.

All people come with their own curiosity and interests. They’re also equipped with mechanisms for testing out and streamlining their learning. They have their own communities. Learning in a PBL/IBL context isn’t some kind of standalone, isolated activity; it’s a complex endeavour that takes into account the what (knowledge and skills), how (exploration and reflection), where (context), who (personal and community), and why (curiosity and interest) of learning as the foundation for meaningful learning experiences. Comprehensive PBL/IBL characteristics span an entire spectrum of qualities from orderly to messy, autonomous to interconnected, expected to unpredictable, and even complete to incomplete.

Shared Ownership

At the core of PBL/IBL is the aspect of shared ownership – the idea that both teachers and students are meaningfully engaged in what goes into and what comes out of their mutual teaching/learning environment. Shared ownership doesn’t mean that teachers and students have the same role, because they don’t. Teachers are there

to do the heavy lifting. They're responsible for implementing strategies that genuinely empower students to interact with the what, how, where, who, and why of learning. They draw from students' own passion, creativity, accountability, empathy, and resiliency to provide support and stimulation so that students can do their own kind of heavy lifting. Thus, students may exercise their own knowledge and skills. In music classrooms, shared ownership is more nuanced than students self-selecting their own instrument or choosing the order of repertoire rehearsal. It's more interactive than teachers directing students and providing confirmation when they think students have got it right. It's about teachers using language and activities to reinforce students' autonomy and support students' growth and progress so they deepen their capacity as increasingly competent, critical, resourceful, and reflective individuals. Shared ownership is all about creating spaces that satisfy students' deeply human desire to learn, to be successful in directing their own lives, and to create things that enrich themselves and the world around them.

A Musical Legacy

How can I possibly do this in my classroom?

This question might be raised by teachers with concerns about taking on the blended role of facilitator, collaborator, provoker, mentor, guide, and resource associated with the shared ownership context of PBL/IBL. By their own volition and disposition, teachers are serious about their responsibility for what goes on in their classrooms and have an undeniable desire to do a good job. They want to influence students in positive ways. Yet, the thought of PBL/IBL teaching may induce fear and anxiety. So indeed, how can teachers possibly be successful with PBL/IBL in their teaching?

What seems meaningful is that PBL/IBL teaching builds on something every teacher already possesses – the capacity for building trusting relationships with students. Through interactions with family, friends, neighbours, colleagues, team members, and community, we all learn about the give and take of trusting relationships. We're good at talking about ourselves; we get to know others; we learn how to help others when they need it and step away when they don't; we can look back and reflect on how things turned out. This means that long before teachers take on PBL/IBL teaching, they already have the fundamental life experiences for making it work. Rather than thinking of PBL/IBL teaching as something fearful and worrisome, taking the next step is all about adding to the capacity for building trusting relationships that teachers already have.

The following chapters in this Resource Manual are designed to support teachers in delving into and getting thoroughly acquainted with the intricacies of PBL/IBL teaching. By developing teachers' vision and proficiency with PBL/IBL teaching and introducing students to PBL/IBL explorations of their Everyday Musical Connections, we hope to generate a musical legacy that empowers students everywhere to engage with music in more significant ways and with greater rewards and satisfaction than ever before.

Teacher Reflection

In recent years, the terms Project-Based Learning and Inquiry-Based Learning have attained an almost 'Buzz-Word' kind of status. The preceding chapter attempts to provide clarity for PBL and IBL in a way that teachers can reflectively imagine themselves taking on such an approach.

1. What characteristics of PBL/IBL do you see are already present in your teaching?

2. What characteristics of PBL/IBL do you think you could incorporate immediately in your teaching without too much effort?

3. What part of PBL/IBL would you say you don't incorporate in your teaching? Why?

4. What obstacles do you think might be keeping you from using PBL/IBL in your teaching?

II. Teacher's Frame of Reference

Teacher's Frame of Reference refers to the broad base of knowledge, skills, attitudes, beliefs, and life experiences teachers bring to the classroom. In particular, music teachers draw from two primary areas: 1. Pedagogic, educational, & instructional domains, and 2. Their relationship with music. Firstly, the way teachers' approach teaching and the instructional strategies they incorporate most naturally draw from their own experiences of having been taught – the long lasting impressions they have of what they liked and didn't like about their former teachers. Teachers may derive their teaching style from beliefs about what ideal classrooms should look like (for example: passive or active; controlled or shared ownership; authoritative structure or shared structure).

- What comes to mind when you think of your own Teacher's Frame of Reference? A particular educational approach?
- How has your teaching style been influenced by your former teachers? What is your primary takeaway from your experience of being a student?
- Describe in simple words your own teaching approach.

Secondly, music Teachers' Frame of Reference also includes their enduring relationship with music, commitment to disciplined practising, and dedication as performers/composers. Music teachers come to the classroom with a history of musical involvement that most likely differs in intensity from their students. This means that on one side, teachers' passion for music may inspire students' musical explorations; and from another perspective, teachers' elevated relation with music may be out of sync with students whose interest in music is linked to socializing and having fun.

- How would you describe your relationship with music? What stands out?
- What would you like students to gain from your music teaching?
- What music teaching strategies are important to you? What musical outcomes are important to you?

In his book *The Skillful Teacher* (2006), educator Stephen Brookfield points out how students consistently look for two qualities in their teachers that have a lot to do with Teachers' Frames of Reference. Brookfield describes how students want teachers who are knowledgeable about their subject domain and teachers who are personally authentic in their instructional approach. They want to spend time with teachers who know what they're teaching and why

they're teaching the way they do. And they want teachers who genuinely know how to be true to themselves. Credible and dependable teachers bring their knowledge and personality into the classroom. So, it makes sense that teachers figure out not only what their own educational and musical Frames of Reference look like, but also how these fundamental aspects influence their readiness for developing productive PBL/IBL classroom environments.

Teacher Role

Particular challenges for music educators may arise concerning the mismatch between the historical model of teacher as unquestionable authority and the PBL/IBL shared ownership classroom environment. For example until recently, many music teachers' Frames of Reference prioritized pedagogical tools that achieved musical excellence in students through direct teaching and rote instruction. Students' musical success was frequently measured in terms of their ability to replicate the teacher's musical model and eliminate performance errors. Furthermore, teachers typically used a one-way approach to communication skills that consisted primarily of telling students what to do and taking control over students' behaviour. This is not to say that teachers' authority, musical excellence, and one-way communications have no place in a PBL/IBL classroom, it should be obvious that they do. However, it should also be obvious that a 'stand and deliver' instructional approach doesn't leave a lot of space for students to exercise their own learning.

What seems key is that PBL/IBL encourages teachers to do more than 'stand and deliver' as an instructional authority. It's about figuring out how teachers' subject knowledge, life experiences, and teaching tools fit into the blended role of facilitator, advocate, collaborator, provoker, mentor, releaser, guide, and resource. PBL/IBL teaching opens the opportunity for teachers to use the broad range of interpersonal skills from their relationships in everyday life to ensure students' active participation in setting up, maintaining, and refining their ongoing shared ownership environment. It's not about teachers abandoning their musical or pedagogical skillset and replacing it with some kind of artificial academic model. Rather, PBL/IBL invites teachers to evaluate and interrogate their Frames of Reference, to determine what's already in place, and consider where it's possible to add to their current knowledge and experience.

The teacher's role takes on a blending of key attributes in order to support a dynamic educational environment.

| | |
|---------------------|--|
| Teacher | Teachers foster students' educational growth by providing leadership, by generating tools so students can manage on their own, and by expanding students' awareness to fill in gaps when they don't know what they don't know. |
| Facilitator | Teachers help their students bring about an outcome by providing indirect assistance. Facilitators excel in watching, listening, asking or answering questions, challenging, offering suggestions, or lending a hand. |
| Collaborator | Teachers help their students overcome an obstacle by directly assisting students with the task. Collaborators repeatedly contribute their knowledge and skills until students can complete the task on their own. |
| Provoker | Teachers may challenge their students to take on explorations that step out of their comfort zone and move past their current knowledge and skills. Provokers understand the uncertainty and risk involved in exploring the unknown. |
| Mentor | Teachers remember the emotional and intellectual turmoil of being a student. Mentors know the importance of understanding, accepting, and caring for students where they are. |
| Advocate | Teachers trust that students have what it takes to make meaningful explorations. Advocates stand up for students' strengths when others can only see what they lack. |
| Releaser | Teachers understand when it's advantageous to get out of students' way. Releasers aren't threatened by students' capacity for independent success. They empower students to keep going on their own. |
| Guide | Teachers assist students by providing scaffolding as necessary. Guides help students with a task being careful not to take over or dominate students' working space. |

| | |
|-----------------|--|
| Resource | Teachers undoubtedly have vast knowledge and experience to share with students. They offer students resources in terms of shortcuts to vital information that is beyond students' ability to reasonably explore. |
|-----------------|--|

Teachers Set the Tone

From the moment they step into the classroom and address their students, teachers set the tone for the type of interactions and expectations that will follow. Teachers who take time on Day One to introduce themselves can demonstrate they're knowledgeable and personally approachable by being immediately upfront about who they are, what they know, where they're coming from, and how they make shared ownership an important part of their teaching. It's a simple way to establish students' trust and to spotlight teachers' credibility, dependability, and ability to put together manageable and worthwhile educational explorations.

Here are some questions that may guide teachers in preparing their introduction:

1. What's important for students to know about how I teach? Why should students trust me as a teacher?
2. How do I ensure that shared ownership is part of my teaching?
3. What do I want students to know about who I am outside the classroom?
4. What can I share about my own musical experiences when I was their age?
5. What is my oldest musical memory? What's my most recent musical interest?

Teacher voice: Hey – Good morning everybody and welcome to OUR music classroom. My name is _____ and, yes, I want to emphasize that I just said OUR music classroom because this isn't My music classroom. It's OUR music classroom. It's a musical place that belongs to all of us and that's something I'm going to tell you more about over the next couple of classes. But for today – OUR focus is getting to know each other. Some of you already know me from last year, but for those who don't. Let me tell a few things about who I am and how I like to teach...

Advice

- Please be aware that any introduction has its limits in terms of too much and too little information.
- Allow time for students to ask questions.
- Teacher introductions should be followed by reciprocal student introductions. Please see Chapter III for more information.

Teacher Reflection

The preceding chapter focuses specifically on the role teachers play in a PBL/IBL classroom. It makes explicit the difference between a 'stand and deliver' approach and the blended role of PBL/IBL teaching.

1. How do you feel about the blended role of facilitator, collaborator, provoker, advocate, releaser, mentor, guide, and resource?

2. Which of the above roles do you currently incorporate in your teaching?

3. Where are your strengths?

4. What about your weaknesses?

III. *Learner-Centered Environments*

Similar to the way teachers' experience and knowledge are relevant to instructional environments, Learner-Centered Environments refers to the way teachers pay careful attention to the attitudes, experience, skills, beliefs, prior knowledge, and interests that students bring to school. Learner-centered teachers deliberately get a sense of who students are, what they're interested in, what they know, what they're able to do, and want to do as integral to setting up a shared ownership classroom environment. This type of awareness differs from the sporadic information gained informally throughout the school year. Here most particularly, teachers intentionally get to know their students as the foundation for future conversations and explorations. They recognize how students' prior experiences and interests serve as a powerful launching pad for exploring and investigating new understandings and educational interactions.

For music teachers, what seems remarkable about Learner-Centered Environments is the opportunity to acknowledge students' already existing relationship with music – to immediately start talking about the Everyday Musical Connections that students experience minute by minute and day after day. Taking the time to find out what students' have to say about their own musical experiences means teachers let students know that their relations with music aren't random or insignificant. Everyday Musical Connections are valuable and integral to their identity and immensely worthwhile to explore. This means teachers welcome students' musical experiences into the classroom and establish an educational environment that demonstrates how what goes on in the classroom is a continuation of students' musical relationships outside the classroom, rather than something separate from their own Everyday Musical Connections.

Teacher voice: So, now that you know a little bit about me, the remainder of this first class is all about you. This term I'm really excited because our program is going to include musical performances and something we've never done before – exploring your Everyday Musical Connections. And it all starts today with an activity called **Tell Your Musical Story**. Here's a handout you can use to guide your process and you have this entire class period to put your presentation together. Be sure to time your presentation and keep it under 3 minutes so that we can get everybody's presentation done in the next two classes.

Tell Your Musical Story

Every person has his or her own musical story to tell. It consists of the many ways in which music occurs in a person's life. It includes those events, places, times, and people when music was there at times in full force and at other times hidden away in the background. To put together Your Own Musical Story, you may want to incorporate some of the following ideas:

1. What's the first piece of music you remember hearing? What was going on at the time? Who was involved?
2. If you play a musical instrument or sing – what's the first piece of music you remember playing or singing? How did you feel at that time?
3. The following words describe how a person may feel about music. Choose as many words as you want and tell why you include these words. Music may be your –

| | | |
|---------------|-------------|-------------|
| Companion | Distraction | Escape |
| Entertainment | Friend | Inspiration |
| Reminder | Background | Energy |
4. What words would you add to the above list? Describe why those words are important to how you feel about music?
5. How has the music in your life been influenced by your parents, your family members, your friends? In what ways? How do you feel about it?
6. Musical events or concerts can be both formal and completely unexpected. What musical events or concerts are part of your story? Where did they take place? Who was involved?
7. What other questions or aspects of your own choice would you like to include?

Additional descriptive words in relation to music – refuge, catalyst, diversion, mood, physical, emotional, spiritual, breath, movement, community, identity, coping nostalgia, success, flow, background, essential, enjoyment.

Formats

- Written essay – 1-2 pages
- Video – maximum 3 minutes

- Oral presentation with posters – maximum 3 minutes
- Oral presentation with Keynote slides – maximum 3 minutes
- **Please make sure to time your presentation. 3 minutes is the limit.**

Advice

- Students may have varying degrees of readiness for using the above **Tell Your Musical Story** template.
 - Some students may find it useful to answer the questions.
 - Other students may find it prescriptive and limits their own imaginative approach.
- While preparing **TYMS**, students may need frequent reminders to keep their presentations under 3 minutes. As with any story, students are not recounting every bit of information possible. They're putting together a limited selection of highlights.
- Students should submit their final **TYMS** presentation to the teacher before the second class so that all presentations will be in one location for easy access.
- On presentation days, teachers may streamline the presentation timeline by:
 - Having a predetermined order for presentations
 - Allowing for only one minute of peer questions following each presentation
 - Setting up the next presentation during the one minute of questions.
- Students may use **TYMS** as the anchor project for their Portfolio of music projects throughout the year.
 - Students should print off the script for **TYMS** to keep in their portfolio

Setting Up the Shared Ownership Classroom

First class – Teacher introduction and student preparation of TYMS

Second and third classes – Student TYMS presentations

End of third class – Teacher announcement for fourth class

Teacher voice: Wow everybody! Thanks so much for the **Tell Your Musical Story** presentations. I think we've all got a good picture of everybody (students and teacher) who is part of OUR musical classroom. That's fantastic! And special thanks to everyone for keeping the presentations to less than 3 minutes. It's much appreciated. I can't wait to see what will happen when we start rehearsals and getting going with your exploring your Everyday Musical Connections in our next class (fourth class). But before then, I want to make sure you start thinking about a couple of things that are going to be pretty important for OUR music classroom. I look forward to hearing what you've all got to say!

Question 1. What do you want OUR music classroom to look like?

When teachers ask for their students' input on questions like number one, they're basically opening the door for students to consider what going to school is all about? Of course, many students will respond to question number one with answers like 'having fun' or 'being with friends'. A few students might have something to say about musical outcomes. Not a bad start to answering the question. However, OUR music classroom also includes the teacher who will most assuredly want to remind students how 'learning' is at the top of what going to school is all about. Without learning, going to school can easily turn into an activity we just use to fill up time. Furthermore in music classrooms, learning and music are the top priorities. While students and teachers may have different perspectives, when it comes right down to it – it seems possible to acknowledge that 'having fun' and 'being with friends' provide important emotional/social support for learning in any context. Thus, by bringing forward their ideas – by sharing ownership of what OUR music classroom may look like – students and teacher identify the dynamics of a music classroom where it's possible to have fun, be with friends, make music, and learn all in one place.

Question 2. What do think students can do to make OUR music classroom a great place to be?

Asking questions like number two is a great way for teachers to find out how students see themselves in the classroom. Do they want to wait and be told what to do? Are they active participants who want to know their responsibilities upfront? Teachers may provide clarity by setting up routines that give students ownership of things like – putting away their backpack, checking the seating chart, putting together their instrument, setting up their chair and music stand, bringing their music folder, putting away their instrument, and stacking their chair and music stand at the appropriate time. Students may also refer to what they do during the rehearsal in terms of ‘sit properly’ and ‘play the right notes’. Most likely, the biggest challenge comes from the need to balance things like ‘no talking’ and ‘watch the conductor’ with the pull of ‘having fun’ and ‘being with friends’. Here’s an opportunity for teachers and students to use discussion to proactively come up with reasonable solutions. The point of answering this question is so that when flare-ups occur, both teachers and students have various solutions in place and no one is caught off guard.

Question 3. What do you think the teacher should do to make OUR music classroom a great place to be?

Students’ responses to question three may include remarks like ‘be nice’, ‘no yelling’, ‘be creative’, and ‘teach us’ – comments that indicate how much students value their relationships with teachers and the opportunity for learning. And they’re also interested in avoiding yet another class with yet another teacher who day in day out does the same old thing. For their part, teachers may be concerned with doing whatever it takes to ensure students achieve excellence in music and learning. It’s interesting to note how students and teachers both circle around the aspect of successful student achievements, yet they separate when it comes to how students want teachers to assist them with achieving success. Teachers can help students understand where teachers are coming from by reminding them that having a ‘nice’ teacher may not always be in students’ best interest. Sometimes students need a teacher who’s willing to ask for more, similar to the way students already know that sometimes they need to push themselves. Moreover, teachers need to remember that students aren’t looking for superficial entertainment or relentless taskmasters. They want reasonable teachers who know how to engage students by making authentic personal connections and stimulate students to reach beyond their usual limits without compromising their emotional

health and wellbeing.

Question 4. What do you yourself as a person want to get out of OUR music classroom?

The final question in setting up the shared ownership classroom is designed to find out why students have enrolled in a music class. On many occasions, students' responses will match with the teacher's goals so there's a sense of mutual confirmation between what the teacher has planned out and what students are anticipating. Students who previously excelled in elementary school music or who take private music lessons may consider school music classes as a credit option requiring minimal effort to succeed. Their parents may want them to have music credits on their high school diploma, so they're typically open to what teachers decide. Students may come with specific performance goals such as Queen's "We Will Rock You", a Van Halen guitar riff, TV and movie themes. Having interested class members learn such selections can bring spontaneous relief to the intensity of rehearsals and display the uniqueness of each class. When students respond to question four with "I don't know" or "I don't care", teachers may tend to take such remarks personally, not exactly sure where students are coming from. Welcoming students into an inclusive music classroom can be pivotal in helping them figure out where, how, and with whom they fit in. Such things take time and patience. At first glance, it's easy to see how asking this fourth question might make teachers nervous. Yet, it's also easy to understand how teachers who solicit answers to this question have an advantage, because knowing who students are and what they bring means teachers can take the first step in making OUR music classroom a place where shared ownership plays an immediate and ongoing role.

Teacher voice: Thanks everybody for contributing your thoughts. It looks like we've put together a great document that we might even call the Charter for OUR music classroom. But I want to be clear that this is a work in progress not something written in stone that can never be altered. In fact, we'll be returning to this information throughout the term to see where we're at – to put in things that we think need to be there and take out things that have run their course. I know some of you have been wondering if we're ever going to make any music in this class, so I'm happy to announce that will happen the next time we get together. I hope you can appreciate that we took the time to get to know all of us over the last few classes. That we've been honest and

upfront about things that matter in OUR music classroom instead of relying on isolated bits of information or gossip. It's been great to hear from all of you and I'm excited about what we might accomplish next. Anybody have further thoughts or questions?..... Then I'll see you next class!

Advice

- Please assure students that there are no 'right' and 'wrong' answers to the questions. Students who are unfamiliar with the process may worry that teachers have a fixed agenda in asking such questions.
 - Often teachers and students may be uncomfortable with the silence of no one wanting to be the first to respond.
 - It may be practical to give students several minutes to write their answers to the questions before sharing responses with the entire class.
- Teachers will want to keep the class Charter in mind during future classes. It's important for teachers to point out moments in class that demonstrate the characteristics included in the Charter.
 - Teachers will also want to give students opportunities to voice their observations of in class characteristics from the Charter.
- Music teachers may use the cumulative information from students' **TYMS** and setting up the shared ownership classroom to inform the way they organize vocal and instrumental ensemble rehearsals. For example –
 - Teachers include repertoire selections that match students' interests.
 - Teachers identify students ready to take on leadership roles and students who may gain from peer assistance.
 - Teachers incorporate more student-led activities.
 - Warm ups
 - Small group practice

Teacher Reflection

The preceding chapter focuses specifically on who students are, what they bring to the classroom, and what they might want to get out of their classroom activities.

TYMS is an activity that may greatly speed up the process of getting information about students' musical identity.

1. What mechanisms do you already use to find out about students' musical persona?

2. Although **TYMS** may be a time-consuming activity, what benefits does it have in the music classroom? Why is it beneficial to do upfront before any rehearsing?

Setting up the shared ownership classroom differs significantly from the traditional 'stand and deliver' position in which teachers inform students of classroom expectations and enforce standards of classroom behavior.

3. What routines do you already have in place that support the notion of shared ownership in your classrooms?

4. Which one of the above questions do you already incorporate? Which additional question could you implement immediately? Why?

5. What steps could you take to increase shared ownership in your classrooms?

IV. Collaborative & Individual

Project-Based and Inquiry-Based Learning offer the flexibility for students to work in collaborative teams or as individuals. While collaborative work is frequently promoted in classrooms for its practicality, students who struggle with group processes may choose to work on their own.

A primary goal of collaborative work is that by observing and engaging with others, students become better at monitoring and questioning their own thinking. At times, students may lead their own group discussions and take responsibility for their own questioning; and at times, teachers may lead discussions.

Various strategies may be used for forming students in collaborative teams.

- *Self-selection*: students form their own groups, choosing to work with their friends or students with whom they are compatible.
- *Like-minded*: teachers form students into groups based on their similar interests from Tell Your Musical Story.
- *Diversity*: teachers create student groups with varying backgrounds.

Each of these strategies has its advantages and disadvantages as opportunities for students to interact, receive feedback, and learn. Research has shown that groups made up of members who are overly comfortable with each other tend not to stretch their creative capacity, whereas groups of unfamiliar members consistently come up with more impressive results. Teachers may help students develop their proficiency with collaborative work by moving gradually from their comfort zone to more demanding configurations.

Size of groups – The number of members in each group should also be taken into consideration. Three members seems to be an ideal grouping as it is small enough to allow each member to take an active role. Groups of four and larger may become problematic as dominant students unconsciously curtail the direct participation of fellow members. Two member groups work well when both participants are prepared to support and challenge each other.

Independent students – Students who desire to work on their own should be reminded that their work needs to have value for others. This means that students keep in mind their responsibility for tailoring or structuring their work so that others may understand, engage with, and appreciate the final product. Given the potential for self-isolation with independent students, teachers may incorporate routines that allow independent students to share their in-progress work with other

students and find out what other students are doing.

V. Student Engagement

Student engagement starts with teachers' acknowledgment of their students' voice and choice, most particularly in identifying meaningful topics, questions, areas, or avenues for exploration and investigation. This means students choose projects that matter to them and want to do well. There's a feeling of authenticity in the way students' choice of topic fits with their interests, culture, identity, or concerns. By recognizing students' motivation for exploring their own topics, teachers foster students' ownership and independence that contrasts remarkably with passively doing an exercise or blindly following a set of directions. So, what can teachers do to help students with choosing a topic from their Everyday Musical Connections? The following steps may be helpful:

1. At the completion of **Tell Your Musical Story**, teachers should be explicit in pointing out how each of the students' stories reveals a lot about their Everyday Musical Connections. Teacher's voice, "I must admit I found it very interesting to see how each of your stories told me something about your Everyday Musical Connections." Write Everyday Musical Connections on whiteboard.
2. Using the language of Everyday Musical Connections, teachers bring students' attention to the presence of various themes. Teacher's voice, "Some of the themes I noticed were –
 - Recurring interest in a particular pop artist,
 - Common emotional reactions to music,
 - Enthusiasm for certain musical genres, and
 - Influence of family members and friends."
3. Teacher's voice, "At our next class, I'd like to get you all started on an exciting project for this term. We'll be exploring a topic from your own Everyday Musical Connections. Don't worry. It's going to be lots of fun and no one's going to have any problems. Until then, you can brainstorm to see what you come up with for possible topics to explore."
4. Next class – Teacher's voice, "Now what I'd like to do is to divide the class into groups of three students and ask you to brainstorm as a group to come up with three possible topics for exploring. One person in each group should keep track of potential topics. Don't worry about coming up with the best topic in the world. Just see what you come up with and we'll go from there."

Exploring Everyday Musical Connections

As we've just seen through your musical stories, music shows up in every person's life in an endless number of unique and interesting Everyday Musical Connections. Over the coming term, your task will be to explore or investigate a topic inspired by your Everyday Musical Connections with other members of your group. You will present your results in the form of a video or keynote presentation in class and in a public presentation. To get started, have a look at the following suggestions for topics.

1. What musical topic would you like to know more about? Choose an aspect of music that intrigues you.
2. Musical comparisons may provide you with an interesting topic. Look for similarities and differences when you compare –
 - a. Two artists from the same genre
 - b. Two musical selections from a movie, your playlist
 - c. One favourite song from each member in your group
3. One musical selection can produce completely different reactions in your group members. Please explain in detail why that is so.
4. How does music show up in your daily life? Document a typical day. Provide an analysis.
5. What is something about music that bothers you? Why is this so?
6. Entertainment – Music often is valued for its entertainment value in the spotlight and as an underlying accompaniment. You may have an entertaining story that involves music.
7. Teaching – There are many aspects of music that involve teaching. What musical aspect would you like to teach others about?

Format & Limits

- Video – 3-5 minutes
- Oral presentation with a maximum of 20 Keynote slides
- Oral presentation with 3-4 posters
- Format of your own choice

Storage

- Computer file, Google docs, paper notebook, document, other

Presentation Dates

- Cycle 1 – Class presentation on _____
- Cycle 2 – Public presentation on _____

Choice of Topics

Please keep in mind –

- Be sure that students complete **Tell Your Musical Story**. This exercise can be a great way to help students gain awareness of their own musical connections. Without that exploration, it may be difficult for students to come up with ideas to explore.
- A good way to get started is to have students brainstorm 3 potential topics. Out of the 3 topics chosen, teachers may help students in determining which topic has the best potential for exploration.
- Don't wait for the perfect topic the first time. Students will naturally develop a better sense of how to choose topics as they work through the year. Get going with what students come up with.
- Students may respond with lots of questions, blank stares, and happy faces. Be ready for each type of student.
- For students who struggle with choosing their topic, the teacher may step in and choose a suitable topic. Be ready to teach directly when necessary.
- Avoid topics that are beyond the scope of students' capacity. Some projects are simply too big, too generalized, too unmanageable for students to take on. (For example, projects involving the history of singing, development of hip-hop music, the Beatles' output.)
- Projects should be meaningful and doable.
- Students will most likely have a diverse range of topics.

VI. Suggested Topics

The following suggested topics may be useful as assigned to an entire class or to smaller groups and individuals as appropriate:

1. Music and health

- Music and the brain
- The effect of music in the work place
- The effect of music on homework

2. Music and movement

- Music and dance
- Music and ballet movement
- Music and hip hop dance genre

3. Music and marketing

- Music in advertisements
- Comparing three music advertisements
- Why is music part of advertising?

4. Music in movies

- Best music in a movie
- Comparison of three types of music in movies
- Why is music part of movie making?

5. Music analysis

- What makes a good song?
- What makes a bad song?
- Why do we get “ear worms”?

6. Music popularity

- Why are Disney songs so catchy?
- What makes a popular song catch on?

7. Musical trend setters

- Why is Queen the all time musician?

VII. Sustained Inquiry

During the 1960s, the term Inquiry-Based Learning emerged as an alternative educational approach to the traditional forms of rote and direct instruction. Inquiry-based teachers take full advantage of students' natural curiosity and their desire to make sense of their environment as the foundation for learning. Rather than having students memorize information or follow a predetermined set of instructions, inquiry-based teachers guide students in exploring, observing, and questioning their explorations and what the results of those explorations mean for their own learning. Inquiry-based teachers don't just abandon students to explore their curiosity, nor do they seek to control students' every move, they carefully work with students to guide, facilitate, and inform students' progress.

Inquiry-based teachers model and utilize a broad skillset that supports students' experiential process of gathering information and creating meaning from their experiences. So, what does teachers' broad skillset look like?

Observe and listen – The ability of teachers to observe and listen is essential to assist students to learn through an inquiry-based approach. Teachers who observe and listen effectively develop accurate and sensitive understandings of their students that constantly inform their interactions. For example when students struggle to come up with topics for exploration, teachers know whether to step back and listen to students' concerns, whether more time is necessary, or whether students would benefit from small amounts of guidance. They even know when it would be beneficial to get out of students' way and let them continue their own self-directed journey. When teachers take time to observe and listen, they demonstrate their confidence in students to develop their own strategies before jumping in and providing a solution.

Facilitate and guide – When teachers facilitate and guide, they make it easier for students to navigate processes and actions. Students may be unfamiliar with how to put together planning strategies for exploration and gathering information. For example, teachers may assist students with creating a framework to organize their thoughts by asking thoughtful open-ended questions. This means teachers encourage students to talk things out, to share ideas with other members of their team and their teacher as the necessary preamble for generating organized strategies. They model planning and

reflective processes.

Formative assessment – Teachers use formative assessment to provide ongoing feedback in support of students’ thinking and understanding. This type of feedback is most valuable because it informs how students will continue to revise, refine, and develop their work.

Inform and refine – Teachers are responsible for providing a rich variety of materials and resources to assist with clarifying and expanding students’ thinking – the way students may gather, compare, sort, classify, interpret, and describe observable characteristics and properties. They encourage students to use all of their senses, to draw information from multiple sources as appropriate, and to incorporate diverse questioning approaches (for example, what, when, how, and why).

Reflective meaning making – Teachers may assist students with becoming increasingly aware of their own learning development and relationship with music. This means over and over again teachers use Tell Your Musical Story and the CIEI Preparation Tool as the anchors for shaping and guiding students’ reflective awareness. This ongoing meaning making process reinforces students’ ownership of their own learning processes while shedding light on the various dimensions of their own relationship with music.

Pedagogic questioning – Teachers may use ongoing pedagogic questioning to critically examine the effectiveness of their educational strategies. For example, teachers figure out whether they should ask questions, provide information in simple statements, guide students to look at details or consider the big picture. In this way, teachers’ questioning of their own pedagogic approach has implications for how they mentor students and the input they give to students.

A key element of sustained inquiry is that such processes take time, incorporate ongoing cycles of fine-tuning, and involve equal attention to content and personal development. Students, through their own hands-on experience, may witness how ideas emerge and evolve to subsequently fuel further questioning or investigation. Knowing that inquiry-based processes can range from non-linear to structured and predictable to random, teachers are attentive to the practice and thinking time necessary for students to put together their best work.

Teachers as Inquiry Facilitators

What seems certain is that Inquiry-Based teachers utilize many of the skills that they use elsewhere in teaching and in their interactions and relations outside the instructional environment. However, the shift from content expert to inquiry facilitator may require a period of

adjustment for teachers. Teachers should keep in mind that when both students and instructor are getting familiar with Inquiry-Based processes, there may be an initial period when teachers need to take a more active role in the process until an appropriate level of student confidence and competency has been achieved. Moving into an educational environment where outcomes are undetermined and learning is more open ended may cause considerable stress and anxiety for many. Students may need time and practice in order to feel comfortable with exploring a range of possible solutions, to take risks, to collaborate and exchange ideas with their peers and with their teachers.

Teachers with little experience as inquiry facilitators may oscillate between being overly directive and providing students with very little guidance or feedback at all. Too much teacher intervention may result in student dependency; too little teacher input may result in students feeling anxious about their explorations. Teachers may support students' explorations by incorporating the CIEI Preparation Tool and Presentation Checklist at appropriate times (see IX. Assessment).

The balance between teacher input and student autonomy is a delicate one. Teachers may achieve an effective balance by implementing the following:

- Ask open-ended questions. Provide follow up to "Yes" and "No" answers with questions that provoke further discussion.
- Actively support students by valuing their ideas and contributions. Develop an atmosphere of trust.
- Give feedback on a regular basis. Start with things students can easily respond to before challenging their progress.
- Ask students what they might need from you.
- Get comfortable with silence. Students most likely require more than 10 seconds to come up with deep thoughts.
- Encourage students to reflect on their experiences.
- Keep track of students' progress and help students to understand where they are in the process.
- Challenge students' thinking. Provide resources for students to extend their thinking.

In large part, facilitating Inquiry-Based Learning would appear to be highly dependent on the language utilized by teachers. Teachers' language can stimulate the generation of ideas, demonstrate support and interest in what students have to say, and provide clues as to whether students are moving in a good direction; and just as easily,

the way teachers talk to students can also shut down each of the previously mentioned instructional assets.

Advice

Inquiry-based teachers recognize that students have varying degrees of dependency on their teachers. Some students need help with figuring out how they'll get to their destination. Some students need reminders to tap into aspects of their own skillset they frequently ignore. Other students may need help with taking small steps towards independence. This means that teachers adjust their language and facilitator skillset to meet students' needs.

Some useful expressions to help students get to their destination:

1. Tell me about more about...
2. Describe your starting point for me in a few sentences.
3. Give me a sense of where you are right now.
4. Talk amongst your group for a couple of minutes and I'll be back.

Four steps to student independence:

1. Demonstration – do it for the students.
2. Collaboration – do it with the students.
3. Observation – watch the students do it.
4. Autonomy – let students do it on their own.

Questioning tips:

- Descriptive – What happened?
- Analytical – Why did it happen?
- Creative – What would happen if you did it again? How would you change/improve?

Additional resources:

1. Noteflight.com – a free music notation website that's very user-friendly
2. Good presentations
 - a. Title
 - b. Introduction and possible hook line
 - c. Main points
 - d. Supporting info
 - e. Conclusion and summary
 - f. Thanks to audience and feedback – any questions?
3. Good storylines

- a. Good title
- b. Characters
- c. Setting, plot
- d. Conflict
- e. Resolution

VIII. Knowledge-Centered Environments

There is no argument that knowledge must be a central feature or outcome of any educational program and that deep learning in any domain requires a substantial amount of input and engagement. Knowledge-centered educational experiences recognize two important areas: 1. Knowledge or content, and 2. Skills related to learning. With this in mind, knowledge-centered environments are structured to engage students in the construction, understanding, and application of their knowledge, in addition to reinforcing skills that students need for learning. Knowledge-centered teachers approach content and learning skills in ways that assists students with understanding, acquiring competency, making sense of concepts, and procedures, as well as their ability to transfer learning beyond the classroom. This means music teachers focus on the practicality of students applying what they know and how they learn to their own everyday musical situations. They purposefully stimulate students' knowledge and skills for learning in several ways.

Understanding and application – Musical knowledge is more than a series of facts to be learned for an exam. There are, of course, facts that assist us with understanding and appreciating music, but these are means to an end not the end itself. Furthermore, there is also a vocabulary specific to music that allows us to communicate various musical concepts to one another. One of the most immediate outcomes of investigations into Everyday Musical Connections is that students become actively involved in understanding and applying the extensive vocabulary we use to talk about music. Basic musical concepts like beat/rhythm, melody, harmony, form, and expression in addition to students' experience with musical genres, performers, and cultural aspects become the practical means for students to explain themselves to others. Students take ownership for developing their own musical understanding and figuring out the intricate ways in which they'll apply their musical knowledge.

Skills that support learning are important because no person is born ready-made to function competently. It's important for teachers to understand that students naturally bring various skills that impact their learning. Investigations into Everyday Musical Connections provide students with formative opportunities to utilize their intuitive sense of successful learning. Teachers may strengthen students' confidence in their skillset for learning by taking the time to purposefully recognize and validate students' emergent efforts.

The unknown – It is unrealistic to expect that students will consistently

become more musically sophisticated and knowledgeable on their own. Thus, teachers have a responsibility to introduce measures appropriate to expanding students' musical knowledge. The challenge for both teachers and students is that they don't know what they don't know – that is until they encounter what they don't know. When students do arrive at something they don't know in their investigation, teachers may meaningfully introduce students to more sophisticated degrees of musical awareness. What seems important is that increasing levels of musically sophisticated knowledge are anchored by explicit practical and personal links to students' own experiences. Processes that tackle the unknown are best introduced when students see a need or reason for their implementation and the relevant uses of knowledge to make sense of what they're investigating.

It is also unrealistic to think that students will uncover certain skills for learning on their own. Teachers may easily introduce new skills when students see a need or reason to implement such skills. However, teachers may face challenges in introducing certain skills when students' working process differs significantly from their teachers. For example, an autonomous student's preference for waiting until the last possible moment to begin working on assignments may be completely at odds with teachers' choice of working in defined steps. What seems important is that teachers consider the compatibility of new skills with students' existing skillset.

Competency and automaticity – Students with a competent grasp of musical knowledge have not only acquired specific musical content, but are also adept at retrieving knowledge relevant to a particular situation. Their ability to fluently retrieve relevant knowledge is an important characteristic of automaticity – the notion of being able to flexibly retrieve important aspects of their knowledge with little effort. Furthermore, students with competent skills for learning utilize a diverse skillset that may include varying degrees of creativity, critical thinking, and communication.

Most assuredly, students acquire competency and automaticity in terms of knowledge and skills as a result of repetitious engagement with information and processes that are necessary to complete a particular task. Project-Based Learning provides an overall structure for supporting students' competency and automaticity because students interact with their teachers, because they continually communicate with other team members over long periods, and because they prepare and deliver public presentations.

Finally, these characteristics – understanding and application, the unknown, competency and automaticity – are valuable parts of an

overall process of learning. While it may be advantageous to separately examine each characteristic, these aspects most typically function simultaneously, interacting and influencing each other as learning takes place.

Perspectives on Knowledge

The following perspectives may be useful in exploring the knowledge associated with music.

| | |
|---|--|
| Basic music concepts <ul style="list-style-type: none"> • Beat/rhythm • Melody • Harmony • Form • Expression | A holistic approach <ul style="list-style-type: none"> • Physical – body • Emotional – heart • Intellectual – mind • Intuitive – gut • Spiritual – soul |
| Five senses <ul style="list-style-type: none"> • Sight • Touch • Hearing • Taste • Smell | Entertainment <ul style="list-style-type: none"> • Storyline • Humour • Background • Information |
| Education <ul style="list-style-type: none"> • Information • Analysis • Comparison | Performers <ul style="list-style-type: none"> • Background |
| Culture <ul style="list-style-type: none"> • Historical • Social | Musical genres |

Skills that Support Learning – Competencies

Educational processes for the twenty-first century differ significantly from those of earlier times. This shift is evident in moving away from an assembly line approach that regarded students as raw material processed by teachers to reach a desirable end product. Today's educators question the relevance of factory efficiency models that aim to streamline students through uniformity of delivery and standardization of outcomes. Students naturally draw from a broad spectrum of learning skills, some of which align with a standardized approach and others that do not. They adopt particular learning strategies because they have different reasons for learning: self-satisfaction, teach others, entertain self and others.

| <i>Skill Types – Competencies</i> | <i>Variations</i> | |
|--|---|--|
| <i>Creativity</i> | Students learn in a step-by-step manner. | Students learn in the manner of a mind map where ideas take shape without consideration of a linear process. |
| | Students rely on a storyline to anchor their learning process. | Students delay decision-making – also known as procrastination – before assembling ideas. |
| <i>Critical Thinking</i> | Students rely on an emotional thermometer to evaluate their progress. | Students seek out information from diverse sources. |
| | Students interpret and organize information collected. | Students evaluate what they've learned and keep what's most valuable. |
| <i>Technical</i> | Word processing Video Keynote | Music notation Audio |
| <i>Communication</i> | Students prefer to talk about their ideas with others and hear what others have to say. | Students see themselves as independent entrepreneurs. |

Advice

Music teachers bring their own preferred methods of learning into the classroom resulting from their own experiences as students. This means they may be completely comfortable with things like following instructions, sticking to a pre-determined format, not giving up or getting distracted, getting things done on time, and striving for high results.

- To support students' learning development, teachers may require a broader and more inclusive vision of what learning skills/competencies look like.
- Teachers may need to remember that not every outcome will be predictable. They should expect a variety of student responses and be ready to make adjustments regarding assessment.

IX. Public Presentations

At the end of students' investigation of a topic from their Everyday Musical Connections, students present a recognizable public product. Presenting results in a public setting encourages students to adopt a level of accountability that goes beyond the private exchange between an individual student and teacher. This social dimension reinforces the notion of a learning community wherein students' learning is tangible and rich with potential to stimulate further discussion. An important aspect of presenting is for students to demonstrate what they know about a topic. Being open to public scrutiny and input, students demonstrate how their work has value for themselves, their peers, their teachers, their parents, and their communities at large.

Frequency – Public presentations should take place at clearly defined intervals that allow students sufficient preparation time. This means that students should neither feel rushed to meet the deadline, nor should they run out of momentum because presentations are too far in the future.

Duration – Given the limitations of class time available for presentations, teachers may want to set clear guidelines. For example, group and individual presentations in all formats (video and keynote) should be no longer than 3 minutes.

Audience engagement – Students should take into consideration their audience's perspective. Students are responsible for tailoring or structuring their work so that others may understand, engage with, and appreciate the final product. Students' tone of voice, speed of delivery, and eye contact also play important roles.

Public follow up – Students should conclude their presentation by asking audience members for questions and feedback.

Audience's Role

At the beginning of each presentation day, teachers may highlight the social dimension of public presentations by inviting students to consider the audience's role in public presentations.

Teacher's voice: "Before we get started today, I just want to ask all of you to think about – what makes a good audience? Do good audience members just sit quietly until it's your turn to present? Who has an idea for us on what makes a good audience?"

Teacher's voice: "Some things you might want to keep track of are – How does this presentation relate to Your Musical Story? What

information from this presentation is relevant to your own presentation?"

X. Assessment-Centered

Appropriate assessment strategies are vital to the fundamental intention of Project-Based/Inquiry-Based Learning and the support of students in their roles as explorers, informers, identifiers, researchers, storytellers, designers, and educators. Effective assessment strategies promote the conduct of inquiry and a spectrum of abilities appropriate to students' projects. Given the wide range of topics and learning outcomes that may be advanced through investigations into students' Everyday Musical Connections, effective assessment strategies address several key points.

Music oriented – Music is the central element for exploration and investigation.

In advance – Teachers share the intended outcomes and assessment criteria with students prior to the assessment activity. This means students are not blindsided by assessment criteria that arrive after the fact.

Shared ownership – Teachers invite students to contribute their thoughts regarding appropriate assessment criteria. Students see their own role in coming up with meaningful standards.

During preparation – Effective formative assessment tools guide students in preparation of their projects and allow students to independently question their own development over time. Teachers may use a flexible assessment framework to structure discussions with students.

Before presentation – Knowing how their presentations will be evaluated, students may make meaningful adjustments and tweak their work in its final preparation.

Post-presentation reflection – Taking time to reflect on the content knowledge and understanding gained from the project gives students ownership of their growth. Reflective evaluation may help students solidify what they've learned and consider how their learning might be applied elsewhere.

Multi-purpose – Teachers use summative assessment to address multiple purposes: student needs, pedagogical follow up, and institutional requirements.

What seems key is that effective assessment strategies are inclusive and upfront. They assist students in preparation, revision, presentation and reflection on their projects. They allow teachers to measure what students have accomplished over a designated period of time and shed light on their own teaching practice.

Assessment – Student Perspective

Effective assessment strategies provide students with guidance that can be applied in the beginning, middle, or end of a project. Teachers should be aware that poorly designed assessment strategies run the risk of alienating students from taking ownership of their process. Well-designed processes provide the openings for teachers to initiate meaningful discussions with students. Furthermore, such strategies also provide students with opportunities to take charge of their own learning, and gradually acquire and build their own skills of self-assessment.

Student Preparation – The CIEI Preparation Tool is a compact tool that students and teachers can use to track development over time. With music as the central focus, groups and individual students may rank the various preparation categories in terms of high, medium, and low development. Please keep in mind that the categories of *Create*, *Investigate*, *Evaluate*, & *Incorporate* should not be interpreted as a linear or step-by-step investigative approach. These categories overlap and interconnect with each other on different levels, at times simultaneously, and at other times, independently.

| CIEI Preparation Tool Exploring Everyday Musical Connections | |
|--|--|
| <i>Create</i> <ul style="list-style-type: none">• I’m exploring my interests & passions• I’m using knowledge & imagination | <i>Evaluate</i> <ul style="list-style-type: none">• I’m adapting my plan as I proceed• I’m watching for what works and what doesn’t work |
| Everyday Musical Connections are the central focus | |
| <i>Investigate</i> <ul style="list-style-type: none">• I’m experimenting with different possibilities• I’m finding people & resources that help | <i>Incorporate</i> <ul style="list-style-type: none">• I’m making sure others will understand my project• I’m making sure my project will be done on time |

As an alternative to giving students the CIEI Preparation Tool, teachers may invite students to develop their own preparation template.

Teacher's Voice: "Now that you've chosen your topic, let's spend a couple minutes talking about what's involved in preparing your presentation. What might be some things to keep in mind when you're working in a group? What's the difference between strong and weak work? What criteria are important for the preparation process?"

This doesn't mean that students are solely responsible for developing a meaningful preparation template. Teachers play an important role, filling in the evident gaps as necessary and guiding students in developing a workable and effective structure.

Student Presentations – As students approach their presentation deadlines, they will most likely benefit from an assessment strategy outlining the various components of good presentations. The following Presentation Checklist is a practical tool especially in the week prior to and immediately following students' presentation.

| Presentation Checklist Exploring Everyday Musical Connections | |
|---|--|
| Information Presentation Essentials | |
| Good presentations include: ✓ Good title ✓ Introduction or hook line ✓ Main points ✓ Supporting info ✓ Conclusions or summary ✓ Audience feedback | Good presenters: ✓ Introduce themselves ✓ Connect with the audience ✓ Talk loud enough ✓ Smile & make eye contact ✓ Look at the audience, not their slides or cue cards |
| Poster presentations ✓ 3-4 posters provide structure for the presentation | Keynote presentations ✓ Slides of engaging images ✓ Slides with bullet-point info |
| Everyday Musical Connections are the central focus | |

| Storyline Essentials | |
|---|---|
| <p>Good storylines include:</p> <ul style="list-style-type: none"> ✓ Good title ✓ Characters ✓ Setting, plot ✓ Conflict ✓ Resolution | <p>Good storytellers:</p> <ul style="list-style-type: none"> ✓ Introduce themselves ✓ Evoke emotions ✓ Share information ✓ Entertain ✓ Ask for audience feedback |

Teachers may also choose to actively involve students in putting together criteria associated with project presentations.

Teacher's Voice: "Let's take some time to define the various elements of a good presentation? What do good information presentations include? What do good presenters do? What about the look of posters and slides? For those of you preparing storylines – What do good storylines include? What do good storytellers do?"

Once again, teachers will want to assist students by filling in the evident gaps as necessary and guiding students in developing a workable and effective structure.

Post-Presentation Reflection – After project presentations have been concluded, students and teachers intentionally debrief the project. Students’ reflections on knowledge and skills utilized may shed light on what they automatically bring with them and where they may require further growth. Reflections on the project’s design and implementation may help students in deciding how they’ll approach their next project.

Questionnaire
Exploring Everyday Musical Connections

Now that you've completed your project presentation, take some time to reflect on what you've achieved, how you got there, and what might happen next. Please respond thoughtfully to the following questions.

1. What did you learn about *yourself* by examining your Everyday Musical Connection?

2. What did you learn about *music*?

3. List five skills you used to put your presentation together.

1. _____ 2. _____
3. _____ 4. _____
5. _____

4. Read through Tell Your Musical Story. How has this project contributed to your relationship with music?

5. What would you like to do next? Continue to refine your current project? Start a new project? What will you do differently?

Ongoing Timeline – As follow up to their self-assessment, teacher assessment, and presentation feedback, students may decide they want to continue working on their project in order to incorporate further developments. In this way, students may or may not devote multiple time periods to one continuous project.

Some projects will require more than one cycle of investigation in order for students to:

- Thoroughly explore their chosen topic,
- Develop and refine their presentation skills (speaking, audience engagement, visuals).

Some projects will not require more than one cycle of investigation because:

- Certain topics will be too small or limited in scope to warrant more than one cycle of investigation.
- Certain topics will be beyond the scope of students. This may not be clear at the outset, but emerge as students repeatedly encounter obstacles they cannot overcome.

Following completion of their project, students decide how to continue in the next cycle of investigation.

Portfolios are a practical way for students to gather their work and keep track of their own personal and musical growth. Portfolios provide students with a practical record of their achievements and the context to reflect on their own work and set meaningful goals for learning. At the completion of their first Exploring Everyday Musical Connections project, students' portfolio should include the following:

- Tell Your Musical Story
- Follow Up Questionnaire
- Exploring Everyday Musical Connections Project 1
- Post-Presentation Questionnaire

Portfolios are particularly useful when students are encouraged to reflect back on their development. Such reflective processes can help students in developing an awareness of their own progress and purposefully support the growth of students' positive concept as learners.

In Summary - Teachers use various assessment strategies as the opening for conversations with students about their progress, achievement, and what might come next in students' future learning.

Assessment – Teacher Perspective

In addition to facilitating the above assessment strategies, teachers also gather and measure what students have learned at the end of a learning project. **Teacher Summative Assessment: Part A** uses the criteria from the above Presentation Checklist.

| Teacher Summative Assessment: Part A | | | | |
|---|------|------|-----|-----|
| | High | Med. | Low | N/A |
| Everyday Musical Connection featured | | | | |
| Presentation | | | | |
| Good title | | | | |
| Introduction or hook line | | | | |
| Main points | | | | |
| Supporting info | | | | |
| Conclusions or summary | | | | |
| Audience feedback | | | | |
| Presenter | | | | |
| Introduce themselves | | | | |
| Connect with the audience | | | | |
| Talk loud enough | | | | |
| Smile & make eye contact | | | | |
| Look at the audience | | | | |
| Poster quality | | | | |
| Slide quality | | | | |
| Storyline | | | | |
| Good title | | | | |
| Characters | | | | |
| Setting, plot | | | | |
| Conflict | | | | |
| Resolution | | | | |
| Storyline Presenter | | | | |
| Introduce themselves | | | | |
| Evoke emotions | | | | |
| Share information | | | | |
| Entertain | | | | |
| Ask for audience feedback | | | | |

Teacher Summative Assessment: Part B uses the criteria from Alberta Education's Goals of the Secondary Music Program.

| Teacher Summative Assessment: Part B Alberta Education Program of Studies | | | | |
|--|------|------|-----|-----|
| | High | Med. | Low | N/A |
| Development of skills in listening, performing and using notational systems. | | | | |
| Students strive for musical excellence, individually and as members of groups. | | | | |
| Students understand, evaluate and appreciate a variety of music. | | | | |
| Development of self-expression, creativity and communication through music. | | | | |
| Students aware of the history of music and the implications of music in our | | | | |
| Additional comments: | | | | |

Marking – Please note these templates are designed so that teachers may complete their marking of students' presentations during the actual presentation. The three minutes of presentation time should provide more than enough time for teachers to complete this task. From an institutional perspective, assessment scores may be quantified in the form of letter grades and percentages factored into students' academic records. Additional comments may provide appropriate information for narrative descriptions.

Advice

As a pedagogical tool throughout the entire PBL/IBL process, effective assessment strategies allow teachers to gather evidence of what's working and what's not working that informs teachers' instructional decisions.

Teacher Self-Reflection

When teachers are reflective about the teaching and learning process, they assimilate new insights, adapt what they already know, and translate critical thinking about knowledge and skills into action. Similar to the reflective process they use with their students, teachers' reflective practice may involve planning, ongoing awareness, meaning making, and follow up. Teachers who are effective reflective practitioners deliberately prepare and analyze classroom activities. They're astute observers who make meaning of students' actions and inactions toward an activity and students interactions with each other. Their reflections at the end of a teaching sequence provide vital information for student assessment and what teachers will do in the next teaching sequence.

While the four stages of reflective process may provide an organized structure, teachers' reflections most likely combine formal aspects of planning and follow up with informal moments of spontaneous awareness and meaning making that populate teachers' ongoing interactions with students.

Teacher Reflection

1. Which aspects – planning, ongoing awareness, meaning making, follow up – do you consider as strengths in your own reflective practice?

2. What could you do to be more deliberate in addressing all aspects of planning, ongoing awareness, meaning making, and follow up in your own reflective practice?

XI. Timeline

This timeline illustrates the various steps teachers and students may take in two cycles of Exploring Everyday Musical Connections. Progress through the timeline will depend on frequency and duration of class time available.

| Schedule | Teachers | Students |
|---------------------------------------|--|--|
| Class 1 | <ul style="list-style-type: none"> Teacher introduction Teachers' Frame of Reference | <ul style="list-style-type: none"> Short introductions Prepare Tell Your Musical Story |
| Class 2 | <ul style="list-style-type: none"> Assist students with Tell Your Musical Story | <ul style="list-style-type: none"> Present Tell Your Musical Story Follow Up Questionnaire |
| Class 3 | <ul style="list-style-type: none"> Introduce Everyday Musical Connections | <ul style="list-style-type: none"> Form groups Brainstorm EMC topics |
| Class 4 | <ul style="list-style-type: none"> Assist students with choosing final EMC topic Introduce CIEI template | <ul style="list-style-type: none"> EMC preparation Use CIEI as guide |
| Classes 5-6 | <ul style="list-style-type: none"> Inquiry facilitation | <ul style="list-style-type: none"> EMC preparation Use CIEI as guide |
| Class 7 | <ul style="list-style-type: none"> Inquiry facilitation Introduce Presentation Checklist | <ul style="list-style-type: none"> EMC preparation Use Presentation Checklist |
| Class 8 In-Class Pres. | <ul style="list-style-type: none"> Discuss audience role Summative assessment during presentations | <ul style="list-style-type: none"> EMC presentation to peers Questionnaire Portfolio update |
| Classes 9-10 | <ul style="list-style-type: none"> Inquiry facilitation Use CIEI for discussion | <ul style="list-style-type: none"> Continue to refine or begin new EMC topic Use CIEI as guide |
| Class 11 Public Pres. | <ul style="list-style-type: none"> Discuss audience role Summative assessment during presentations | <ul style="list-style-type: none"> EMC formal presentation to parents, peers, other classes |
| Class 12 | <ul style="list-style-type: none"> Summarize before moving on | <ul style="list-style-type: none"> Questionnaire Portfolio update |

Advice

Differences between Grades 5-12 music classrooms may result in various approaches. For example, Grade 5 and 6 classes include EMC explorations in every class period and complete multiple explorations throughout the year. Whereas, Junior High and High School classes devote specific periods of three to four weeks to EMC explorations that do not conflict with rehearsal and preparation for concerts. They complete limited explorations. Teachers should feel comfortable with adjusting the timeline to meet the needs of their classes.

XII. FAQs

FAQ: What do you do when students ask, “Why are we doing this? Can’t you just tell us what we need to learn for an exam?”

A: This kind of question is great because it demonstrates something students have in common with everyone else – a desire for shortcuts. Of course, there are times when it may be useful for students to take a shortcut and simply memorize what they need for an exam, like taking their learners’ written driving test. However, research indicates that memorizing data tends to be something that individuals have difficulty in transferring out of the context of taking a test and into daily life. This means teachers use PBL/IBL strategies because they value students’ time and effort. And if students only have a limited amount of time and effort for learning things, then teachers want to make sure students’ investment in learning lasts longer than the 30 minutes it might take to complete an exam.

FAQ: I’ve just set up my class with groups of three students. I notice two of the groups are sitting in silence. What can I do?

A: There are several factors you may consider to solve this situation. How well do the group members know each other? What kind of introduction or icebreaker would help out? How is the room set up? Are students facing each other and do they have the resources they need? You can always wait things out. Give students a chance to take ownership and get going. Leaving students on their own may be important. Your presence may be stifling.

FAQ: As a teacher, I want to provide a safe and inclusive environment for my students. Sometimes, it seems to me that PBL/IBL teaching introduces ambiguity and uncertainty into the classroom. Am I wrong to be concerned?

A: What seems important in your question is that ambiguity and uncertainty are most assuredly undesirable when they make students and teachers uncomfortable with the educational process and have a negative impact on everyone’s participation. Yet, both students and teachers can live with ambiguity and even thrive with uncertainty. What’s key is that teachers develop challenges at levels appropriate to remain engaging for students. Tasks that are too ambiguous can easily become boring. Tasks that involve too much uncertainty can be frustrating for everyone. This means teachers contribute by facilitating

discussion and guidance that helps students to see themselves purposefully taking charge of open ended and undefined explorations, rather than getting bogged down by ambiguity and uncertainty.

Advice

Further thoughts on what happens in trusting, safe, and inclusive learning environments –

- Students need to be able to trust that teachers will allow them to inquire for themselves, not simply chase answers already defined in the teacher's mind.

FAQ: Where can teachers view examples of students' explorations into their Everyday Musical Connections?

A: Please check out Student Projects @ www.merlinthompson.com
You'll find examples of students' projects from Grade 6 to Grade 9.

XII. Resources

For teachers – please cut & paste or modify/tailor the following one-page documents to meet the needs of your students:

1. Tell Your Musical Story
2. Exploring Everyday Musical Connections
3. CIEI Assessment Tool
4. Presentation Checklist
5. Questionnaire Exploring Everyday Musical Connections
6. Teacher Summative Assessment: Part A
7. Teacher Summative Assessment: Part B

Tell Your Musical Story

Every person has his or her own musical story to tell. It consists of the many ways in which music occurs in a person's life. It includes those events, places, times, and people when music was there at times in full force and at other times hidden away in the background. To put together Your Own Musical Story, you may want to incorporate some of the following ideas:

1. What's the first piece of music you remember hearing? What was going on at the time? Who was involved?
2. If you play a musical instrument or sing – what's the first piece of music you remember playing or singing? How did you feel at that time?
3. The following words describe how a person may feel about music. Choose as many words as you want and tell why you include these words. Music may be your –

| | | |
|---------------|-------------|-------------|
| Companion | Distraction | Escape |
| Entertainment | Friend | Inspiration |
| Reminder | Background | Energy |

4. What words would you add to the above list? Describe why those words are important to how you feel about music?
5. How has the music in your life been influenced by your parents, your family members, your friends? In what ways? How do you feel about it?
6. Musical events or concerts can be both formal and completely unexpected. What musical events or concerts are part of your story? Where did they take place? Who was involved?
7. What other questions or aspects of your own choice would you like to include?

Additional descriptive words in relation to music – refuge, catalyst, diversion, mood, physical, emotional, spiritual, breath, movement, community, identity, coping nostalgia, success, flow, background, essential, enjoyment.

Format & Limits

- Written essay – maximum 5 pages
- Video – maximum 3 minutes
- Oral presentation with posters – maximum 3 minutes
- Oral presentation with slides – maximum 3 minutes

Exploring Everyday Musical Connections

As we've just seen through your musical stories, music shows up in every person's life in an endless number of unique and interesting Everyday Musical Connections. Over the coming term, your task will be to explore or investigate a topic inspired by your Everyday Musical Connections with other members of your group. You will present your results in the form of a video or keynote presentation in class and in a public presentation. To get started, have a look at the following suggestions for topics.

1. What musical topic would you like to know more about? Choose an aspect of music that intrigues you.
2. Musical comparisons may provide you with an interesting topic. Look for similarities and differences when you compare –
 - a. Two artists from the same genre
 - b. Two musical selections from a movie, your playlist
 - c. One favourite song from each member in your group
3. One musical selection can produce completely different reactions in your group members. Please explain in detail why that is so.
4. How does music show up in your daily life? Document a typical day. Provide an analysis.
5. What is something about music that bothers you? Why is this so?
6. Entertainment – Music often is valued for its entertainment value in the spotlight and as an underlying accompaniment. You may have an entertaining story that involves music.
7. Teaching – There are many aspects of music that involve teaching. What musical aspect would you like to teach others about?

Format & Limits

- Video – 3-5 minutes
- Oral presentation with a maximum of 20 Keynote slides
- Oral presentation with 3-4 posters
- Format of your own choice

Storage

- Computer file, Google docs, paper notebook, document, other

Presentation Dates

- Cycle 1 – Class presentation on _____
- Cycle 2 – Public presentation on _____

| CIEI Preparation Tool Exploring Everyday Musical Connections | |
|---|---|
| <i>Create</i> <ul style="list-style-type: none"> • I'm exploring my interests & passions • I'm using knowledge & imagination | <i>Evaluate</i> <ul style="list-style-type: none"> • I'm adapting my plan as I proceed • I'm watching for what works and what doesn't work |
| <p>Everyday Musical Connections are the central focus</p> | |
| <i>Investigate</i> <ul style="list-style-type: none"> • I'm experimenting with different possibilities • I'm finding people & resources that help | <i>Incorporate</i> <ul style="list-style-type: none"> • I'm making sure others will understand my project • I'm making sure my project will be done on time |

| Presentation Checklist Exploring Everyday Musical Connections | |
|---|--|
| Information Presentation Essentials | |
| Good presentations include: ✓ Good title ✓ Introduction or hook line ✓ Main points ✓ Supporting info ✓ Conclusions or summary ✓ Audience feedback | Good presenters: ✓ Introduce themselves ✓ Connect with the audience ✓ Talk loud enough ✓ Smile & make eye contact ✓ Look at the audience, not their slides or cue cards |
| Poster presentations ✓ 3-4 posters provide structure for the presentation | Keynote presentations ✓ Slides of engaging images ✓ Slides with bullet-point info |
| Everyday Musical Connections are the central focus | |
| Storyline Essentials | |
| Good storylines include: ✓ Good title ✓ Characters ✓ Setting, plot ✓ Conflict ✓ Resolution | Good storytellers: ✓ Introduce themselves ✓ Evoke emotions ✓ Share information ✓ Entertain ✓ Ask for audience feedback |

Questionnaire
Exploring Everyday Musical Connections

Name:

Date:

Now that you've completed your project presentation, take some time to reflect on what you've achieved, how you got there, and what might happen next. Please respond thoughtfully to the following questions.

1. What did you learn about *yourself* by examining your Everyday Musical Connection?

2. What did you learn about *music*?

3. List five skills you used to put your presentation together.

1. _____ 2. _____
3. _____ 4. _____
5. _____

4. Read through Tell Your Musical Story. How has this project contributed to your relationship with music?

5. What would you like to do next? Continue to refine your current project? Start a new project? What will you do differently?

| Teacher Summative Assessment: Part A | | | | |
|---|-------|------|-----|-----|
| Name: | Date: | | | |
| | High | Med. | Low | N/A |
| Everyday Musical Connection featured | | | | |
| Presentation | | | | |
| Good title | | | | |
| Introduction or hook line | | | | |
| Main points | | | | |
| Supporting info | | | | |
| Conclusions or summary | | | | |
| Audience feedback | | | | |
| Presenter | | | | |
| Introduce themselves | | | | |
| Connect with the audience | | | | |
| Talk loud enough | | | | |
| Smile & make eye contact | | | | |
| Look at the audience | | | | |
| Poster quality | | | | |
| Slide quality | | | | |
| Storyline | | | | |
| Good title | | | | |
| Characters | | | | |
| Setting, plot | | | | |
| Conflict | | | | |
| Resolution | | | | |
| Storyline Presenter | | | | |
| Introduce themselves | | | | |
| Evoke emotions | | | | |
| Share information | | | | |
| Entertain | | | | |
| Ask for audience feedback | | | | |

Teacher Summative Assessment: Part B
Alberta Education Program of Studies

Name:

Date:

| | High | Med. | Low | N/A |
|--|------|------|-----|-----|
| Development of skills in listening, performing and using notational systems. | | | | |
| Students strive for musical excellence, individually and as members of groups. | | | | |
| Students understand, evaluate and appreciate a variety of music. | | | | |
| Development of self-expression, creativity and communication through music. | | | | |
| Students aware of the history of music and the implications of music in our | | | | |
| Additional comments: | | | | |

About the Author

Merlin B. Thompson is one of Canada's leading authorities on music pedagogy. Over the past four decades, he has worked with hundreds of piano teachers, students, and parents throughout Canada, USA, Australia, Japan, and New Zealand. Currently, Merlin offers Professional Development for music instructors in the Calgary region. He is an instructor of music pedagogy in the Schulich School of Music at McGill University and teacher mentor in the Werklund School of Education at the University of Calgary.

Merlin holds a Ph.D. in education research from the University of Calgary, a Masters degree in musicology from the Université de Montréal, and Bachelor of Music in piano performance from the University of Regina. He is the first Canadian to complete the three-year teacher apprenticeship program at the Matsumoto Talent Education Institute where he studied under the mentorship of Dr. Shinichi Suzuki – founder of the Suzuki Music Method.

Merlin's podcast series – The Music Educator's Crucible – is available through his blog at merlinthompson.com.

Merlin is an active, award-winning music education scholar whose works have been published in numerous international academic journals including *American Music Teacher*, *American Suzuki Journal*, *Educational Theory*, *Journal of School Choice*, *MTNA E-journal*, *Philosophy of Music Education Review*, and *Studies in Philosophy and Education*. He is the 2017 recipient of the *Article of the Year* by the *American Music Teacher* journal of the MTNA. In September 2017, Springer Publications released his book *Fundamentals of Piano Pedagogy: Fuelling Authentic Student Musicians from the Beginning*. In October 2018, his introduction to music reading workbook *PLAY What You Read and READ What You Play* was published by Alfred Publications.

For more information on Merlin B. Thompson, please visit www.merlinthompson.com.

Bibliography

- Alberta Education (1988). *Music: Choral, general, instrumental Jr. High*. <https://education.alberta.ca/media/482121/jhmusic.pdf>.
- Alberta Education (2016). *Career and technology foundations: Program of studies*. <https://education.alberta.ca/media/3576047/final-ctf-program-of-studies-april-11-2017.pdf>.
- Alfieri, Louis; Brooks, Patricia J., Aldrich, Naomi J., & Tenenbaum, Harriet R. (2011). Does discovery-based instruction enhance learning? *Journal of Education Psychology* 103(1) 1-18.
- Banchi, Heather & Bell, Randy (2008). The many levels of inquiry. *Science and Children* 46(2) October, 26-29.
- Bransford, John D., Brown, Ann L. & Cocking, Rodney R. (1999). *How people learn: Brain, mind, experience, and school*. Washington, D.C.: National Academy Press.
- Brookfield, Stephen (2006). *The skillful teacher*. San Francisco, CA: Jossey-Bass.
- Cox, Dannon G., & Meaney, Karen S. (2018). Lights, camera, project-based learning! *Strategies* 31(1), 23-29.
- Kahn, Peter & O'Rourke, Karen (n.d.). *Guide to curriculum design: Enquiry-based learning*, University of Manchester: Higher Education Academy.
- Kelly, Robert (2016). *Creative development*, Canada: Brush Education.
- Juliani, A.J. (2015). *Inquiry and innovation in the classroom*. New York, NY: Routledge.
- Larmer, John & Mergendoller, John R. (2010). Seven essentials for project-based learning, *Educational Leadership*, 68(2) September, 34-37.
- Larmer, John; Mergendoller, John; & Boss, Suzie (2015). *Gold standard PBL: Essential project design elements*, Buck Institute for Education.
- Learn Alberta (2008). *Assessment in mathematics*. <http://www.learnalberta.ca/content/mewa/html/assessment/index.html>
- Ontario Ministry of Education (2010). *The full-day early learning Kindergarten program*. http://www.edu.gov.on.ca/eng/curriculum/elementary/kindergarten_english_june3.pdf
- Warren, Acacia (2016). *Project-based learning across the disciplines*, Thousand Oaks, CA: Corwin.