A TOOLKIT FOR DECISION MAKING THROUGH GAMIFICATION

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We accept the Major Project as conforming to the required standards.

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Abstract

This project incorporated the core competencies of critical thinking, communication, positive personal and cultural identity in the redesigned BC curriculum through the vehicle of decision-making. Decision-making based on values is a framework of decision making that is used in tough environmental or government decisions and is based on what is important to the organization or the issue at large. In the use of this framework, students will gain a better understanding of what is important to them and will encourage them to examine the different perspectives in decision-making, thus allowing them to examine diversity and how diversity plays a big part in decisions that we make. Gamification will be used to engage students in understanding the key components of decision-making. A role playing collaborative game using perspective taking and decision-making was created and the students work cooperatively through problems or decisions using the steps of the value focused framework to build a harmonious society through game play.

Keywords:
Student engagement, gamification, core competencies, decision making, diversity, perspective
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Chapter 1: Introduction

Background

It all began with a thought . . . As I had been in a very intense group project in my own learning, I began to question how I have taught group work for years. What if I created groups and those groups stayed together for a term and really had to get to know one another? They had to begin to understand themselves as learners and realize they are people with strengths and stretches and also understand their group members’ strengths and weaknesses. What if they had to think about what they valued as a group? Would it be completing a task? Would it be everyone does their part? Would it be that everyone shares their ideas? Each group member would be bringing a value to the group conversation.

They began making norms or protocols for their group. They included: be on time, share your ideas, everyone does their work, some even put in consequences if they didn’t do their work. They added roles people would do: facilitator, supply collector, writer, timekeeper and more. Decisions were made by majority ruling or voting. I realized that this voting method had no mention of who they are and what is important to them. Could there be a better way to teach kids to make decisions? Does voting allow us to really dialogue and find out what the members in our group need or want, and why? Voting as a form of decision making is very limiting and really leaves out the individual. What if there was another way?

What if we were able, through the core competencies, defined as, “a set of intellectual, personal, and social competencies that students develop to engage in deeper learning and to support lifelong learning through the course of their schooling” (British Columbia Ministry of Education, 2018, Glossary p.3), to teach children how to make decisions based on who they are (identity) and what is important to them (values). This creates a better understanding of the fact
that others have very different ideas (valuing diversity), and we can come to a consensus by having a conversation and looking at the pros and cons of each option. Such processes would encompass communication, critical thinking and awareness of personal and cultural identity of the redesigned curriculum through the core competencies (British Columbia Ministry of Education, 2018). Value focused decision-making has a framework that would allow for decisions to be made with consideration of what is important to you and others and a way to make a calculated and well thought out decision (Hammond, J.S., Keeney, R.L., & Raiffa, H., 1999).

**What I Believe**

I believe that the way I learned in school must be different from the way we teach now. I remember being in high school and learning DOS (Disk Operating System) and not understanding a bit of it, but realizing that computers were going to be a way of the future. I entered university and the electric typewriter lessons I had in grade 10 were already in the past. In three short years, the word processor had taken over. As I moved to Japan and the Internet became available, I was so excited to hear it dial and then connect. The connection to Internet is no longer a surprise but an expectation. It is expected that a new apps will be created daily and new versions of existing programs will continually be updated. Technology has brought us social media and the ability to communicate across the globe. Our world has become globalized, defined as, being able to easily communicate and engage with people around the world, which means that we need to teach perspective and values. In our educational world of pluralism one must consider the values of all students not matter their race, religion or any other factors that come into play (Valuing Diversity, 2008).

So what are we going to do about this much-needed shift in education? The Organization for Economic Co-operation and Development (2015) has identified seven principles of learning which are: put learner first, emphasize the social learning nature of learning, understand that
emotions are central to learning, recognize individual differences, stretch all learners, use assessment for learning, and build horizontal connections. These principles are the moving force behind the needs of the 21st century learner, defined as a learner who is acquiring the knowledge, skills and expertise needed to be successful in the 21st century (British Columbia Ministry of Education, 2018).

Dweck (2006) coined the terms, growth and fixed mindset which is an important concept for students to understand because it aids in the goal of becoming a lifelong learner. A growth mindset is the belief that we are all capable of attaining our goals. It is ultimately the belief that we are not born with a certain amount of intelligence or gifts, but are able to attain them through effort and determination. Educators need to acknowledge the effort and thinking students have put into the project, so they improve their outcomes; concentrating on the process and their thinking around their learning; not only the outcome as we had traditionally done. Angela Duckworth (2007) coined the term “grit” which is the ability to have resilience. We all need to accept the fact that we will have setbacks along the way and the questions we need to ask ourselves is “how are we going to react to the setbacks?” “Are we going to give up or keep trying?” We need resilience to get back up and keep going. Both of these theories have been proven to improve student outcomes and successes if implemented properly.

Dylan Wiliam and Siobhan Leahy (2015) have developed the concept of Assessment for Learning (AFL), which is aligned with Dweck and Duckworth. It is the process of giving feedback along the way to improve the outcome and push the learner. When AFL is used effectively, teachers create, as Deborah McCallum (2015) called, a culture of feedback. Creating a safe place for students to give and receive feedback; making it a daily conversation in all parts of our teaching. We must move students towards being a lifelong learners not just completion of assignments. These aforementioned concepts are incorporated in Butler, Schnellert and Perry’s
(2017) work on Self-Regulated Learning (SRL). SRL is teaching our kids to think about their thinking and their values and who they are to be the best learner they can be. It encourages students to become engaged with their learning.

Teaching students how to work in groups is another key component to making them successful in the 21st century (Bellanca & Brandt, 2010). They need to be able to understand their strengths and stretches and be able to communicate these to their group members by setting goals that will help them improve. Gardner (1985) coined the term multiple intelligences, to teach children that there is more than just “school” smarts. It is a way for them to get to know themselves and others. Gibbs (1995) created a systematic way to build “tribes” that are emotionally safe and the students learn to work together. By students understanding themselves and teachers having a method to facilitate group learning, our students will begin to understand the core competency of collaboration.

The core competencies are the cornerstone of the new curriculum. Bringing communication, critical/creative thinking into the classroom with the focus being that students understand themselves and are able to develop an understanding of different perspectives in the classroom. Developing a framework to help them make decisions based on their values, while valuing the diversity of their classmates. This is what I strive for in my classroom as I help students become lifelong learners and enter the world.

**Justification for Project**

As I compare the old curriculum to the Redesigned Curriculum, they look very different. The old curriculum was filled with content and check boxes. As a teacher, I enjoyed looking at the boxes and being able to check them off as I went. It was very reassuring to see everything I had accomplished over the year. The Redesigned Curriculum has given teachers autonomy in the way it is designed. We are given the big ideas with guiding questions to help us explore the
curriculum using curricular competencies to give it some familiarity and structure. However, if we look at the triangles on the top called the core competencies this is where the real change needs to occur. These competencies run from kindergarten to grade 12 and look different at different stages of development. Yet, it is the common thread that can facilitate collaboration and cohesion across the grades (British Columbia Ministry of Education, 2018).

As I examine more closely the core competencies, critical thinking is covered in most of the areas of my teaching. The one area that I view as imperative to creating a more globalized world are personal and social competency. This is a competency that creates growth in individuals as students and allows them to think about their values and brings perspective and values into the dialogue. Globalization is brought in through the value of diversity and culture. Our educational framework is one of pluralism, we must teach an understanding of all cultures and try to promote the understanding of values and that people hold different values based on where they come from which will allow them to develop cultural agility.

**Purpose of Project**

Being we have shifted to 21st century learning, we need to recognize that globalization and technology have been a factor to the redesigned curriculum. The core competencies encourage students to learn about their identities and embrace the world while valuing diversity. It promotes students applying information instead of just regurgitate it. Critical and creative thinking are encouraged because they are skills students need to be successful in the future.

The purpose of my project is to teach the core competencies through value-based decision-making; by creating a role playing game that will engage students to think critically. It will be collaborative which will allow students to work together and bring differing perspectives to decision-making opportunities which will alter the outcome of the game.
Our values, and societal norms around our values, have changed and continue to change as we embrace the 21st century. However, the fight for equality and freedom have remained a constant throughout our western history (Halstead, J.M., 1996). To better understand the values of the 21st century, we need a historical perspective on how we have landed where we are today. I take up this theme in the following chapter which provides a review of literature that supports an integrated framework for engaging students in practicing core competencies through value-based decision-making. I explore literature that argues that these competencies are best developed through games because they engage students more fully.
Chapter 2: Literature Review

Historical background

As we begin to explore the reasons why the BC curriculum was redesigned, it is important for us to develop an understanding of where it has been. Before European settlers arrived, family life for First Peoples in North America placed children at the centre part of the community as being respected and valued (Muir & Bohr, 2015). They were able to explore the land and learn their roles in a hunting and gathering society. They learned from their elders the ways of the land and how to protect it. They didn’t differentiate work and play; all of life was work and all of life was play (Cheah & Chirkov, 2008). The children would mimic their fathers and create hunting games which developed their creativity and strategic thinking skills. The fathers valued their play and saw this is a natural development of learning to be skilled hunters. Children would play beside their mother and imitate them as they worked; this was a natural part of their learning because they would soon have this role in their community (Gray, 2013).

Looking at Europe in the same time frame, a feudal system was beginning to develop. This feudal system created a caste system which was a hierarchical structure where kids were suppressed and if not obedient, often punished. This European way of life was now brought over to Canada by settlers. The agrarian system and culture of that time required children to work the land and help their parents. The value of children was measured in the work they did (Gray, 2013). They had little time to play and it was not valued by the adults in their lives. The Industrial Age marked the beginning of children working in factories. Only in the late 1800’s did the government make laws, so that there were limitations on the age and hours of work of child labourers. Building on Mulher’s (1959) comparative study of childhood and children’s
education across different cultures, Gray (2013) stated that children in the western world were expected to be obedient and their play, although tolerated at times, was usually suppressed.

In the 16th and 17th century, schools were starting to become compulsory in Europe; churches decided that everyone should be able to read the bible so they developed schools. The government began to see schooling as a way to create patriotism and soldiers. The most important piece here is that school was seen as a way to put information into a blank slate, the child. School was structured in this fashion and kids were forced to memorize information reinforcing a skills based learning environment (Gray, 2013). School was viewed as a job not a place to play (Miller, 2008).

As stated previously, children playing and exploring was not a part of this schooling culture. In the late 1800’s, the traditional approach of education was patterned after an industrial model. It was developed to make factory work more efficient. It also helped keep the standards of education consistent (Drake, 2014). Education also adopted this concept and that is where grades for assessment purposes originated. The 19th and 20th century definitely changed society; but the beliefs around exploration and play were not considered an important part of learning and schooling reinforced that societal belief (Gray, 2008). Yet in ancient societies, games, play and education were much more closely related than they are now (Miller, 2008).

This brings us to the present day dilemma of how we as educators move our learners into the 21st century by reclaiming play and supporting children to develop capacities for critical thinking, communicating and embracing a diverse society through personal and social awareness. These skills are important in the current era where globalization and technology are changing childhood and their futures. There were two ideologies of teaching that western society has been swinging back and forth from: Traditional vs Constructivism.
Pedagogies: Traditional Approaches vs. Constructivist Approaches

From 1840 until the present, we have been on a pendulum swing between the traditional approach and the constructivist pedagogical approaches. The traditional teaching model was a skilled based method of teaching. It was teacher directed and students received information and there was an assessment to see how well they retained the information (“Traditional versus Modern Methods”, 2015). This approach originated during the industrialization of education where educators wanted to preserve the past and educate students on what was known not on what was to be in the future.

The constructivist approach or progressive education was influenced by John Dewey, Jean Paiget’s and later Kolhberg and Vygotsky’s work (Drake, 2014). The constructivist approach is a student-centred discovery model focusing on student thinking skills, individual students, students develop skills for autonomy and self-direction (Lourenco, 2012). Studies have been conducted to see which theory gets better results. Kahlid and Azeem (2012) and Lord (1997) showed that the constructivist approach, which is student-centred, allows students to think freely and explore which results in better learning outcomes for students at a university level. This theory of teaching is much more in tune with the 21st model which holds the child at the centre (British Columbia Ministry of Education, 2018). The constructivist theory provides a bridge to 21st century learning which must take into consideration the disruption of new technologies, globalization and the resulting need for children to learn to value and live in very diverse societies.

The reason we need to change our teaching is to help create more enlightened, curious, adaptable and ethically active contributing citizens. Aoun (2017) stated that there are four cognitive capacities needed for the future. The first being critical thinkers, “analyzing ideas skillfully and applying them fruitfully” (p.62). The second being creating system thinkers,
people who can make connections and see the big picture. The third is entrepreneurship which is a person seeing a problem and getting excited to fix it using innovation as their lead. The fourth is cultural agility, “a deep enough immersion in a culture so that we can fit seamlessly into a multicultural teams and get results from people who have dramatically different lives from our own” (p. 71). Educators need to educate students with these skills in mind as they are the skills businesses need in their employees. All of these capacities will impact the way we make decisions.

The Shift into 21st Century Learning

Technology. Technology has opened the world to us, yet for many years we were reluctant to bring it into the classroom. However, Pearlman (2010) used the term “digital natives” to describe our students; they have never known a world without computers (Bellanca & Brandt, 2010). As technology isn’t going anywhere, educators need to teach students to use it responsibly. Technology itself is just a tool, like a pen to paper, the thing that matters is what is written or typed. Technology has allowed us to meet people we have never met before and network and collaborate with them. Students need to learn how to communicate and interact positively with each other through social media and they need to understand that who they are online is also part of their identity. These skills need to be talked about and taught to students so they can be to responsible citizens who are globally aware (Bellanca & Brandt, 2010).

Fisher and Frey (Bellanca & Brandt, 2010) suggested that teachers need to “stop thinking of technology in terms of nouns (PowerPoint, YouTube, or Twitter) and instead think in terms of verbs (presenting, sharing and communicating). In other words, as teachers, we should focus on the functions of technology rather than the tools or forms of technology” (p. 226). Teachers have been focusing on the other skills for a long time. Using technology in the class is necessary to help develop the skills the students need to enter this globalized world. Technology
is our mode of communication whether that be through email, Snapchat or Instagram. It is how we communicate with the world. The skill set that our students need for the 21st century is collaboration, problems solving, innovation and creativity. Technology is our vehicle to teach these skills and help them understand their role and responsibility in becoming a global citizen (Bellanca, & Brandt, 2010).

Not only is technology important for the tools of the 21st century learner but also for student engagement. Technology is defined as: using computers and digital devices to enhance learning. When they are able to use computers, to access homework or work collaboratively with their peers, the learners are more engaged (Bellanca & Brandt, 2010). As teachers have been moving towards problem-based and inquiry-based teaching, the students need to be able to access information. Technology allows them to explore and ignite their curiosity. Curiosity and self-discovery are a key component to authentic learning (Harvey, 2017). Lemke (2010) discussed student engagement and the need to find the perfect balance between boredom and frustration. If you find the perfect flow, students are self-motivated and eager to learn which leads to adaptive expertise. Adaptive expertise is when you are able to apply knowledge and skills in any given situation (Butler, Schnellert, Perry, 2017). This is a skill which is necessary in 21st century learning and technology is a tool to helps student develop this skill.

The shift in our learning environments need to happen to meet the demands of a world that thrives on technology. Technology has allowed us to connect to the world making globalization inevitable.

**Globalization.** Globalization is all around us, in the media, the food we eat, the clothes we buy and the cars we drive. As we look at our classrooms, we see a variety of ethnic groups as opposed to the past when it was predominately one. We need to educate for the world that is, not the world that existed in the past. The industrial economy needed workers to be skilled for a
specific job, but a global economy is a service economy where information, communication, and knowledge are important for jobs that are on the horizon (Bellanca, J. & Brandt, R., 2010). The world is growing smaller and ideas travel fast (Naito, 2014). Globalization needs to be understood by educators so we can teach the skills that are needed for less certain employment futures and a more diverse society.

The term globalization was coined by an economist Theodore Levitt in 1985 (Spring, 2008). Globalization although originating in the economic world has become a concern for educators (Bellanca & Brandt, 2010). Schools need to understand their role in a global economy. We, as educators and institutions, need to become globally aware and look outside of ourselves to help students become global citizens (Deardorff, 2012). Most of the countries in the world are developing an understanding that we need to educate our young to help promote economic growth which encompasses the necessity of lifelong learning. Educational systems are now trying to learn from one another. We are looking to Finland, Singapore and other countries to guide us into our own educational change that requires us to look and think globally (Hargreaves & Shirley, 2009). To think globally, we need to understand the value of diversity.

**Valuing diversity.** Canada is a country that is multicultural and diverse, as educators, we must teach with the knowledge that classrooms are made up of individuals with different beliefs and value systems (Jones & de Witt, 2012). The core competencies in the redesigned curriculum are forcing educators to view students as different individuals living together rather than as a ‘melting pot’ a term coined by Israel Zangwill, which attempts to erase difference (“Multiculturalism”, 2014). One of our core competencies in the Social Responsibility Competency is value diversity (B.C. Ministry of Education, 2018). We all bring different values and beliefs to the table, we must acknowledge those differing beliefs and figure out how we can work together to achieve freedom and equality for all (Halstead & Taylor, 1996).
The British Columbia Ministry of Education: Framework for Diversity (2008) definition is “Diversity is an overarching concept that relies on a philosophy of equitable participation and an appreciation of the contribution to all. It is a concept that refers both to our uniqueness as individuals and to our sense of belonging or identification within a group or groups” (p. 7). There are three acts that help reinforce diversity: BC Human Rights Code, Canadian of Rights and Freedoms, and the BC Multiculturalism Act. The common elements of these acts are: equality, fair treatment, nondiscrimination and inclusion. Each one of these plays an important role in the classroom and teaching about diversity (British Columbia Ministry of Education, 2008).

The Multicultural Act was put into effect in 1996, due to our history around the Indian Act of 1876. In 1971, Pierre Trudeau committed to the principle of multiculturalism. Part of this commitment was to help recognize the rights of the Aboriginal peoples (“Multiculturalism”, 2014). In 1982, multiculturalism was put into the Canadian Charter of Rights and Freedoms (“Multiculturalism Act”, 2018). The British Columbia Ministry of Education (2008) stated “Multiculturalism encourages understanding, acceptance, mutual respect and inclusion, in order to make society more equitable for all people” (p.9).

Inclusion is a word that is often used in the education field. The word inclusion first started being used in the field of special education and means “everyone” (Moores, 2016). It comes from a belief that values the person first. Inclusion is about learning from each other, collaborating with each other, gaining multiple perspectives and valuing everyone no matter who they are and for being their unique selves (Moore, 2016). Inclusion is teaching our students to value diversity.

The shift in our learning environments need to happen to meet the demands of a globalized diverse society. Technology has brought us the vehicle to engage in globalization and
diversity and teach our children those skills. Embraceing the British Columbia Redesigned Curriculum, especially the core competencies will allow our students to develop an understanding what it means to embrace diversity.

**Core Competencies**

As stated earlier the reason for the development of the core competencies is due to technology and the need to embrace globalization as a way to the 21st century. The OECD (2009) decided that they needed to know what skills were needed for the upcoming generation. They facilitated a project titled the New Millennium Learners and the objective was to see how technology was impacting the minds of our youth, such as, their “cognitive development, values, lifestyles and educational expectations” (p.5). The other part of the study was to understand where educational policy and practices were in regards to the changes that technology has brought to our lives.

We often talk about competencies and skills as being the same thing. Here is a definition from the OECD (2009):

“A competency is more than just a knowledge or skills. It involves the ability to meet complex demands, by drawing on and mobilising psychosocial resources (including skills and attitudes) in a particular context. For example, the ability to communicate effectively is a competence that may draw on an individual’s knowledge of language, practical IT skills and attitudes towards those with whom he or she is communicating” (Rychen & Salganik, 2003, p. 8 in OECD, 2009). Skills are needed to be able to accomplish the outcome of the competency.

The core competencies are the cornerstone of the redesigned curriculum. Although teachers know them as core competencies another name for them is cross-curricular competencies, because they are used across every subject. B.C. Core Competencies were developed noting the specific needs of British Columbia. Besides the competencies listed by the
OECD and C21: Shifting Minds, an organization the BC Ministry used to develop the redesigned curriculum, which are general to the world, British Columbia has added the First Peoples’ Principles of Learning (British Columbia Ministry of Education, 2018). The core competencies that BC has selected is Thinking, Personal and Social Awareness, and Communication which fall in line with the 21st century competencies that the OECD (OECD, 2009) has identified.

The goal of the core competencies was to create lifelong learners (British Columbia Ministry of Education, 2018). As British Columbia has taken a whole student approach to learning, their core competencies show an intellectual aspect through the thinking competency, a personal aspect which is developed through discovery of self, identity and social awareness enable students engaging with each other and the world through different perspectives and valuing diversity (British Columbia Ministry of Education, 2018).

**Thinking.** The Thinking Competency has three sub-domains: critical thinking, creative thinking, and reflective thinking. Critical thinking is a skill that has been taught throughout the centuries, however, now with so much information and media we need this skill to decipher what is the “truth”. The ministry’s definition cited in Defining Cross-Curricular Competencies: Transforming Curriculum and Assessment (2018), “Critical thinking is the thoughtful examination of a question for the purpose of discerning what is reasonable to believe or do in a given situation” (p.5). What do they value or believe about this information? Being we are inundated with information all of the time we need to figure out what is relevant and what is not. We need to understand how to synthesize information to make a good decision and figure out what is “true”. Howard Gardner, the creator of multiple intelligences, speaks about the synthesizing mind. It is the mind that can take information and pick out the pieces and use it to create, or make a decision. It is the ability to use the information that is imperative skill (Bellanca & Brandt, 2010, BC Ministry of Education, 2018, OECD, 2009).
The OECD study (2009) stated that technology has brought so much information to our fingertips, which means new skills are needed. There are two categories of information. One is “information as a source” and the other is “information as a product” (p. 9) each of these require different skills. The first one requires the skills of searching, selecting, evaluating and organizing. The second one requires taking the information and developing your own ideas: using the skills of creativity, innovation and decision-making.

The ministry’s definition cited in Defining Cross-Curricular Competencies: Transforming Curriculum and Assessment (2018), “Creative thinking is the act of generating and implementing ideas that are novel and innovative to the context in which they are generated” (p.6). Technology once again has created the need for students to be innovative. Lemke (2010) stated that we need to take an ideas and create a new spin on it using our creative thinking. This will help students gain the ability to function in a world that is constantly changing. They will need to be flexible and be able to adapt to situations that arise. Adaptive expertise, is term that Butler et al used, “involves applying knowledge and skills flexibly and adaptively as needed in any given situation” (p. 43). Flexibility is the key to helping students discover their creativity. For creativity to ignite, we need to allow them the freedom to explore and create (Bellanca & Brandt 2010, Butler et al., 2017).

The ministry’s definition cited in Defining Cross-Curricular Competencies: Transforming Curriculum and Assessment (2018). “Reflective thinking is the ability to reflect on one’s own thinking and learning process, to ask what worked and did not work in a given situation, to make connections to existing knowledge, and to identify what one can do differently next time in order to learn more effectively” (p. 6). Butler et al. (2017) pointed out that, “[A]ny time we engage students in reflecting on their learning and learning processes, we create opportunities to stimulate their active construction of the knowledge, skills, strategies, values, and beliefs
associated with more effective forms of SRL” (p. 89). When students are able to talk about their learning and the success and challenges this is what the real world is like. Reflective thinking and critical thinking partner up for someone to be able to tell you what they would do differently next time. We can’t be lifelong learners if we are not able to self-reflect.

**Personal and social competency.** The next set of core competencies that the BC Ministry has embraced is the personal and social competency which has three sub domains: positive personal and cultural identity, personal awareness and responsibility and social awareness and responsibility. The ministry’s definition of the positive personal and cultural identity as cited in Defining Cross-Curricular Competencies: Transforming Curriculum and Assessment (2018) “A positive personal and cultural identity is the awareness, understanding and appreciation of one’s own ancestry, culture, language, belief and perspective in a multicultural society” (p.7). This once again led us to the reason for educational change, globalization. We need to know who are, to begin to value diversity of others and realize that the world is made up of many different belief systems and values. Students need to begin to know their strengths and stretches and know that if they work on their stretches they can change. Howard Gardner has created a kids version of multiple intelligences which helps students understand more about their areas of strengths. Children need to understand who they are so they can appreciate each other’s differences which promotes inclusion of all.

The ministry’s definition of personal awareness and responsibility, cited in Defining Cross-Curricular Competencies: Transforming Curriculum and Assessment (2018) “Personal awareness and responsibility is the ability to understand and take responsibility for one’s actions, including one’s learning, to make constructive and ethical decisions about one’s personal and social behaviour, and to accept consequences and understand how one’s actions affect one’s own well-being and that of others” (p.7). This competency is related to Butler’s (2017) practice of
Self-Regulating Learning. Self-Regulated Learning encompasses more than just the learning, it also includes social and emotional learning, assessment for learning and growth vs fixed mindsets which are all related to learners success.

The ministry’s definition of social awareness and responsibility, cited in Defining Cross-Curricular Competencies: Transforming Curriculum and Assessment (2018) “Social awareness and responsibility is the ability to cooperate and collaborate with others, empathize with and appreciate the perspective of others, and create and maintain healthy relationships within one’s family, community and society”(p.8). This competency is about being inclusive, perspective taking, collaborating, valuing diversity and interacting with each other and the environment. British Columbia has been an advocate for valuing diversity through a human rights initiative. They developed a framework, called Diversity in B.C. Schools: A Framework (2008) to help create a safe place for our most vulnerable students, which include, special education, indigenous peoples, multiculturalism and LGBTQ2. As stated previously in this paper, inclusion is a big part of globalization and the 21st century learning shift. Part of being inclusive is learning the art of collaboration.

Richardson spoke about how technology has allowed us to collaborate with people all over the world (Bellanca & Brandt, 2010). We are no longer learning alone. We can be playing video games and having trouble with the level we are on and we can ask the online community for hints. We can collaborate with strangers to win a game on online. In the school setting, we can create games with each other on Scratch a coding website that is kid friendly. Johnson and Johnson (2010) talked about the ability needed to learn cooperatively and resolve conflict as a skill that is needed being we are building relationships at a faster rate due to technology. Intrapersonal skills are needed to work collaboratively. One must learn how to disagree respectfully and still maintain a relationships with classmates and friends. We must care for each
other and the environment around us and try and make an impact. Teachers must create a safe environment to foster social and emotional learning to make this competency successful (Butler et al., 2017).

**Communication.** The next set of core competencies that the BC Ministry has embraced is the communication competency which has two sub-domains: language and symbols and digital literacy. The ministry’s definition of language and symbols, cited in Defining Cross-Curricular Competencies: Transforming Curriculum and Assessment (2018) “Using language and symbols to communicate is the ability to exchange information, experiences, and ideas through many modes, including written and spoken language, symbols, movement, gesture, body language images, in order to make meaning and to create and maintain relationships with the goal of building a common understanding” (p. 8). Communication is no longer a face to face meeting or even a written memo; it is being able to synthesis information and put it into a way people can understand (C21 Canada, 2012, OECD, 2009). It is the ability to present the outcomes of your learning. It is no longer just a test, but the ability to communicate your learning, so people can understand is a very important shift in our teaching. Boaler (2016) talks about the ability to explain your thinking in math. It isn’t about getting the answer right or wrong, but the ability to explain your strategy around the problem.

The Ministry’s definition of digital literacy, cited in Defining Cross-Curricular Competencies: Transforming Curriculum and Assessment (2018) “Digital literacy is the awareness and skilled and appropriate use of digital media and communication tools as part of learning, social participation, and professional preparation” (p. 9). Johnson and Johnson (2010) bring up the point of digital citizenship skills and the importance of learning how to communicate appropriately online. Social media is the way our youth are communicating, yet many students/teachers are able to type messages they would never say in person. So, teaching
students what is acceptable to write and share is imperative for their academic and social success. Technology provides so many engaging ways to share and communicate, children need to learn the skill of how to use technology for learning and communicating (Bellanca & Brandt, 2010). One of the most important lifelong skills that students need to know is how make decisions about life and how to make them with people who have different perspectives.

**Decision-Making**

Decision-making is a necessary skill for the 21st century learner (RBC, 2018, March). The OECD (2009) has established that it is a core competency that every child needs. Hammond et al. (1999) stated, “The ability to make smart choices is a fundamental life skill” (p.2). Teachers need to start thinking about the process of “how” to teach decision-making because of its importance in this ever-changing world. Decision-making encompasses all of our B.C. Core Competencies: Thinking, Communication, and Personal and Social Awareness (British Columbia Ministry of Education, 2018).

Decision-making is in all facets of our lives. There are simple decisions and there are complex decisions; there are low consequence decisions and there are decisions that will impact many people positively or negatively. Decisions are usually made in reference to problems or choices (Fitzgerald, 2002). There are different approaches to decision making. One of the models used is called rational decision making, which is a based only on data. It usually has a single best outcome. However, it has been discovered that the rational model is only part of the decision making process (Fitzgerald, 2002). Senge (2006) spoke of trying to make decision based on solutions that worked in the past. One of those solutions was to “work harder”. His experience showed that this approach often backfires. One just ends up working harder but the problems still exist. Fitzgerald (2002) talked about business managers making decisions by edict and persuasion.
“Although managers are commonly aware of some higher quality approaches to decision making like participation, they tend to resort to more ineffective approaches like issuing edicts. For example, participation was used in just 1 out of 5 of the 356 significant decisions included in the study. Yet 73% of decisions made with participation were fully implemented, and 80% of those decisions continued to be sustained after two years, as opposed to a mere 35% and 53% for decisions made by edict and 47% and 56% for decisions made via persuasion. Unfortunately, the latter two methods were employed 75% of the time” (p.4).

As educators we make decisions all day, whether we are administrators, teachers or another position in the school building. These decisions impact students. There are several theories of how to approach decisions and create positive change in student’s lives and the school.

One approach that has been widely used is Appreciative Inquiry (AI). This method is a process that looks at the organization's strengths and figures out how to build on what is working using creative possibility (Cooperrider, Whitney, & Stavros, 2008). Senge (2006) stated that when working with organizations one must access all participants and a personal vision must become a shared vision, therefore, gaining compliance from most participants. Decisions can be made based on shared goals. A method that has the ability to incorporate AI, participation and personal beliefs, is decision making based on values. It is a method that uses data, values and communication. This process is used for tough environmental decisions where many parties need to find the best possible solutions (Gregory & Keeney, 2002).

The skills needed for decision-making are the 21st century skills of: problem/solving, critical thinking, creative thinking, cultural agility, cooperative learning, and intrapersonal
skills. Problem solving and critical thinking are both used in all methods of decision-making process.

One model that emphasizes the often under looked importance of values is ProOACT, which stands for Problem, Objective, Alternatives, Consequences, and Trade-offs the acronym coined by Hammond et al. (1999). Each one of these steps brings us to a better understanding of our interests and values. Values as defined here are: what is important to you? (Hammond, et al., 1999) Fisher and Ury (2011) used the term interests. What is the interest of each party?

**Problem.** Defining the problem is the first step for all models of decision making (Fitzgerald, 2002). It is what brought us to this point in the first place. Defining the problem is very important. If we define the wrong problem, our outcomes are not going to be as beneficial. Mc Tighe and Wiggins (2013) stated the question is the first part of understanding the problem. Once the questions are asked than the problem becomes more defined. This concept can be carried over to the first step in value-based decision-making. Problem-based learning can be very beneficial to students and help them develop the skill of decision-making. Barrel (2010) stated problem-based learning is thinking of a “real world” problem and helping solve it. The students must define the problem they will solve accurately. One of the obstacles that can face us in defining the problem is that we don’t use our creative thinking, another skill needed for the 21st century. Problems are usually created by circumstances outside of our control; however, they can be turned into opportunities if we use the skill of creative thinking (Hammond, et al., 1999). Value focused thinking is proactive and is about creating an opportunity (Keeney, 1992).

**Objectives.** Objectives are goals, desired outcomes or even decision criteria (Fisher & Ury, 2012). It’s asking the hard question: what do you really want? It allows you to control your fate instead of letting fate control you. It is being proactive by critically thinking about the desirable outcomes.
Butler et. al. (2017) stated, “Like 21st-century learners, autonomous self-regulators not only know how to identify expectations set for them for others, but they also know how to develop and pursue their own goals, make choice and decisions, think and problem-solve flexibly, and chart their own pathways into the future” (p.45-46). Identifying objectives is an art, but an art you can practice systematically (Hammond et al., 1999).

**Alternatives.** The next step to decision-making is alternatives. The core competency of communication needs to be used through active listening and being receptive to all parties and all ideas. Gardener (1985) talked about intrapersonal skills being a skill set. Intrapersonal skills are need for negotiating and getting all people to voice all of their ideas. Aoun (2017) also stated that cultural agility, defined as, the ability to adapt to all cultures, will be an important part to being receptive to all peoples ways of thinking. Within the decision-making framework, Hammond et al. (1999), stated that the perfect solution never exists, however, there is usually a decision that no one disagrees with.

**Consequences.** The next step to decision-making is consequences, which uses critical and analytical thinking (Gregory & Keeney, 2002). Every decision has positives and negatives. Basically, it comes down to evaluating the consequences and deciding if you are able to live with the consequences. The last step of the process is trade offs. This is the point in the system where we look for fact and opinions (Kenney, 1992). Looking at the facts and using the skill of communication, you can begin the process of elimination of some of the choices.

**Uncertainties and risk tolerance.** The last component of this systematic approach to decision-making is uncertainties and risk tolerance. It is very important that for every decision the uncertainties are voiced. If they are stated, there will be no surprises. So even, if a bad choice is made, you know the possible outcomes of each choice. Life is filled with uncertainties, but if calculated into our decisions it helps us understand them better. Uncertainties are a very
logical process that uses probability and percents to give us a better perspective on the decision (Fisher & Ury, 2011). As values and interests are made known, the understanding of the amount of risks we are willing to take when making decisions is important. At some point, you might choose not to negotiate because the risk is too great and you will need to try again another time or rethink the alternatives again and see if you can come up with something different (Fisher & Ury, 2011).

Gregory (1991) stated that decision-making is about: critical thinking. The ability to weigh the pros and cons of any situation is an important life skill. It is not teaching values such as “right” from “wrong” but teaching how to critically think and figure out what is important. Many of us often make decisions quickly not based on values, but on the fact we don’t want to live in ambiguity. Brocas, Carrillo, Combs, & Kodaverdian, (2016) conducted a study on children from K-5th grade on the ability to make value based decisions. “The patterns we observe indicate that improved self-knowledge of preference is that ability which supports the development of value-based decision-making” (p.9). As shown by the study the more we teach kids about value-based decision-making the more they will be able to make decisions that are well thought out and will engage many parts of their thinking. When teaching such an important skill, student engagement is a key factor in making it successful.

**Student Engagement**

Students learned best when engaged. If we don’t strive for engagement, we won’t create lifelong learners (OECD, 2015). The shift in 21st century learning is that the student is at the centre and we need to create learning that engages them. Engagement is created by creating a classroom culture of: curiosity, safety, social learning, students in control of their own learning, and real life problems (Bellanca & Brandt, 2010; Butler, et al., 2017; Berger, et al., 2014). Barrel
(2010) stated this is possible if teachers are willing to change the way they teach. They need to adapt to the 21st style of teaching, such as, inquiry and problem-based learning.

OECD seven principles have challenged us to not only educate students while in school but to create lifelong learners. OECD (2015) stated, “Learner engagement needs to become an objective in itself. Without it, not only is the success of learning activities put in doubt, but the habits of lifelong learning are not being laid and reinforced” (p. 28). British Columbia has adopted these seven principles when redesigning their curriculum (Ministry of Education, 2018).

If we are really designing learning to meet the needs of every student, than we need to look at what Csikszentmihayli (1990) called “the flow”. The flow is when the content of what they are learning is not too hard, so it isn’t frustrating, but not too easy so they are bored. It is the sweet spot where they are so engaged time stands still (Csikszentmihayli, 1990). Lemke (2010) stated, “In order to engage students fully in deep learning, they need to be motivated, curious learners” (p. 247). It is imperative for teachers to engage students through the different ways such as, inquiry, problem-based learning and the use of technology which allow students to have choice and input in their own learning.

By giving students choice and control over their learning, engagement is a natural consequence. Ron Berger e tal. (2014) talked about how children come to school excited and curious but over the course of the years school is something that is done to them. However, if we put them in the driver seat and have them a part of the planning (inquiry) and creating success criteria together, then they become more engaged in with the learning. Butler et al. (2017) referred to this as self-determination which is the capacity to take over their own learning. Therefore, school is not done to them but they are in charge of their learning. If we are able to foster autonomy, they are more likely to challenge themselves and take risks. Autonomy allows kids to focus on their strengths which will enhance interest (Rubie-Davies, 2015). When
children are able to make goals and follow through with them because they are held accountable, and they care about the goals they set; they have what Butler et al. (2017) termed as self-determination, which is a part of self-regulated learning. Along with the child having more autonomy and choice, it is very important that they learn with each other.

In the 21st century, schools need to be a social place for children to learn together. For them to learn together they need to have a safe place. A place where they can try things and fail and learn from their failure (Dweck, 2006). This helps our brains learn; taking risks and putting yourself out there and potentially being wrong takes courage. A teacher must learn that we are not always looking for the right answer but the thought behind the answer (Boaler, 2016). Creating a safe place for students to learn is important if we want deep learning to take place. This is done by giving feedback that is learner centred and understanding that learning is the focus, not the outcome (McCallum, 2015). The ability for students to learn to give feedback to help fellow students move forward is one of the biggest motivators for students. They listen to their peers (Dylan & Leahy, 2015). Berger et al. (2014) talked about building a culture of collaboration, trust and evidence. Respecting the learner and the process of the learning is so important. Being able to trust each other will allow true learning to take place which will open the door for them to be engaged. Collaboration is a skill that employers want for the 21st century, it also helps with students engagement (Boaler, 2016).

School is a social place. It is a place where feedback is given all the time, especially by peers. As teachers, it is our job to help train the students how to give proper feedback (Wiliam & Leahy, 2015; Berger et al, 2014). This is an important part of collaboration and learning in a social environment. The evidence shows that peer feedback has a much greater impact than teacher feedback (Wiliam & Leahy, 2015). Johnson and Johnson (2010) stated that cooperative base groups, are long term groups where groups work together for a common goal and they hold
each other accountable for their learning. Their research has shown that greater effort is exerted, relationships are better, and their ability to resolve conflict is practiced. As teachers, collaboration in the 21st century needs to be taught and used regularly, so students develop the skills they need for the workforce.

The whole point of the 21st century shift to learning is to better prepare students for the skills they need in the real world (Aoun, 2017). Therefore, teachers have the opportunity to use real life problems to help them learn. Debe (2010) compared educational frameworks to the 21st century framework by discovering that technology has allowed us many different platforms to allow children to connect with the world in different ways. It has allowed us to develop video games, blogging, and using online sources to collaborate which make learning close to the real world (Bellanca, J. & Brandt, R., 2010). Barrell (2010) stated that problem-based learning is best facilitated by real world problems rather than artificial ones because problems than have meaning. The British Columbia redesigned curriculum has allowed teachers to create real world problems based on what is happening in the current world through the big ideas. You can engage with your local surroundings and problems and still be teaching the curriculum (British Columbia Ministry of Education, 2018). Gaming has always been a way to captivate and engage learners. As our technology gets better and better, we continue to develop games that intrigue. Jan-Paul van Staalduinen (2011) studied the relationship between educational learning and games. He takes a look at what deep learning and elements of gaming have in common.

**Gamification**

Gamification is one way to increase student engagement in learning. When children are engaged in play, they are learning (Felicia, 2011). Play is defined as an activity that is done for enjoyment and happiness (Stieglitz, Lattemann, Robra-Bissantz, Zanekow, & Brockmann, 2016). The word play has not been used with traditional education since education became
formalized in the industrialized era. School was seen as a “job” and therefore, the definition of “play” does not fit (Miller, 2008). If we change our beliefs that school can be fun and play needs to part of it, then we can move into the concept of gamification. Gamification is an approach to turn non-gaming material into a game context. Business and education are two areas that are able to use gamification successfully. If classroom teachers know the elements of making games, they will be able to engage learners more successfully and student engagement fosters deep learning (Felicia, 2011, Scarlatos & Scarlatos, 2008).

**Engagement theories.** Just as 21st century educators are concerned with student engagement, so are gaming experts. There are three types of engagement that have been studied: flow, intrinsic and extrinsic motivation and self-determination. As stated previously, flow theory is based on the state of an individual when they are thoroughly engaged and time seems to be irrelevant. It is the zone, where they are not bored because it is too easy, nor do they give up because it is too challenging (Felicia, 2011, Bellanco & Brandt, 2010). The second theory is intrinsic and extrinsic motivation. Intrinsic motivation is when the individual is driven internally by the joy or ambition of the activity, while extrinsic motivation is when they are driven for the reward or outcome (Felicia, 2011, Stieglitz et al., 2016, Brigham, 2015). The third theory is called self-determination theory (SDT) which focuses on nurturing intrinsic motivation. SDT has three core beliefs about humans: competence, relatedness and autonomy. Competence is the feeling that one has the ability to influence outcomes. Relatedness is having supportive social relationships. The third one is autonomy which is the sense of choice (Edward & Ryan, 2008). If these three things are interwoven it creates “autonomous motivation” (Stone, Deci & Ryan, 2009). There were two studies done on US banks and they found that their employees who received autonomy and support from their managers had better job performance and less anxiety and depression (Baard, Deci, and Ryan, 2004).
These theories have helped understand the engagement of a learner. Butler et al. (2017) uses SDT in her Self-Regulated Learning Approach to engage students. Engagement is a critical piece for deep learning to take place (Bellanca & Brandt, 2010). Staalduinen (2011) defined deep learning as: “learner possesses the relevant knowledge, but can also use that knowledge to solve problems; the knowledge can be transferred to new problems and new learning situations. The learner has attended to relevant information and has understood it” (p. 100). Student centred learning helps contribute to deep learning (Sardone & Devlin-Scherer, 2016). Using the psychological theories of motivation will help educators in learning how to better reach our students and help them learn. It is a fact that students drop out because they become disengaged with learning (Felicia, 2011). Gaming can be the vehicle to reignite their interest into learning.

**Gaming in the classroom.** Gamification is a way for educators to engage students and help them activate skills needed in our society today, such as critical thinking, problem solving and decision-making. There have been a few studies conducted to see if students actually do learn more by gamification. The first study was conducted by Robinson (2014) on a group of university students in a psychology class getting ready for an exam. Students rated the session in the gaming section as more enjoyable. However, the research showed that for rote facts gaming made no difference in retention of facts in the outcome. The students in the gaming section did better on the essay, so one could conclude that the gaming session allowed them to apply the information in a more meaningful way. The limit of the study was that it was just relevant to the counseling students and there were not sufficient tools to assess engagement. Another study conducted by Scarlatos and Scarlatos (2008) used a math and writing app to help engage the students. Teachers saw more improvement in engagement of learning rote math concepts and the outcomes improved (Howard-Jones, Jay, Mason & Jones, 2016).
Problem based gaming is a type of gaming that links “world problems” with games. In the past gaming has been used to mostly help student enhance their skills of a subject but what research has shown is that kids need to be able to take the skill and apply it (Aoun, 2017). Kiili (2007) discovered that “collaboration and learning by doing were found to be the most important characteristics of educational games” (p. 394). One of the big differences between problem-based gaming versus other gaming or educational tools is the reflection phase. By allowing the students to reflect on the game enables deeper learning to take place (Butler et al., 2017). Kiili stated, “In games, the storyline and the game world can be used to contextualize the problems included. Furthermore, the collaborative nature of problem solving is emphasized” (p. 396). Problem-based gaming is the perfect link between education and the game world, bringing in all the elements necessary for learning and student engagement and the 21st century needed skills.

**Element of successful gameplay.** For games to be successful there needs to be certain elements to make the game enticing and exciting for the player; these are called game mechanics. The most common mechanics are points, leaderboards, and levels. Point are used to reward the user and give them incentive to keep playing. Leaderboards is a system created to compare themselves to the game or each other. Levels show the player progressing through the game (Stieglitz et al., 2016, Brigham, 2015). There are many more elements that can be introduced to make your game more interesting, but the more you add the more complex your game will become (Felicitia, 2011).

For the purpose of this paper we will be focusing on the basics of game creation for educational purposes. Elements that will be needed are story or character, interactive feedback so that the players know where they stand, and collaboration. The final component will be an outcome or a clear goal, so the player is clear of the games objective and how to win (Stieglitz et al., 2016, Brigham, 2015).
Games can be classified into three categories: competitive, cooperative and collaborative. Competitive play are players directly against each other and must use strategy to beat the other person. Nash (2002) stated cooperative play is when you are not completely opposed to each other but still have autonomy to make decisions. This type of play creates a win-win situation. The third type of play is collaborative play. This is when all of the players work together as a team to win. They share in all the decisions to alter their outcomes with the hope of winning the game (Zagal, Rick, & Hsi, 2006). The difficulty of a collaborative game is that people must leave their competitiveness and work together which can be challenging. Collaborative games often have a storyline and are used mostly in role playing games (Zagal, Rick, & Hsi, 2006).

Many games begin with a storyline, which is very similar to the story that one might write to publish in a book. This is defined as the action link domain which is the story of the game (Felicia, 2011). The story needs a beginning, middle and an end. However, it is best if the story is told as the play unfolds instead of all at the beginning. The story needs to create a setting and the character development is important to the play of the game (Bates, 2004). The story and the game interact with each other and help develop the character’s attributes (Felicia, 2011).

The next important feature in cooperative games is the tension between the individual’s game play/decisions and the team. For the individual to be engaged they need autonomy to make their own decisions, yet they must also consider that their decision impacts the teams ultimate goal, so they might need to make selfless decisions for the greater objective of the team to succeed (Zagal et al., 2006). The team needs to be invested in the outcome for the cooperative game to succeed. For the game maker, these delicate balances may be hard to achieve.

The final three components of the game are the goals/objectives, feedback and conflict of the game. The goals/objectives are the games win conditions (Felicia, 2011). The players need
to know what the ultimate goal is so that their decisions of gameplay will show the desire to win (Amory and Seagram, 2003). It can be in the form of points or some kind of system so the players know how they are doing in the game. Feedback can be given to players in a variety of ways, but must entice the player to keep playing (Felicia, 2011). The final element of the game being designed is around problems which Van Staalduinen (2011) defined as conflict. This involves the plot of the game and will help the player interact with the game and stay engaged. The game is activating decision-making skills and critical thinking which are important for deep learning (Killi, 2007).

**Conclusion**

Shifting teaching practices in to the 21st century to improve student engagement, judgement and adaptability for success in a rapidly changing world is important. Facilitating such competencies through game play can be useful teaching stratagem to assist students in practicing the core curriculum competencies. The core competencies are at the forefront of gamification. It is engaging them at the level needed for deep learning to take place and helping them make decisions around “real world” problems. Teaching children value-based decision-making through a game will help engage them into a deeper understanding of the process they will need to develop perspective and what is important to them as they make decisions.
Chapter 3: Rationale for Toolkit

As stated in chapter two, educators need to continue shifting their practices to meet the needs of students in the 21st century. Emphasizing the British Columbia Core Competencies (British Columbia Ministry of Education, 2018) is imperative to the success of all students. Therefore creating a game to increase student engagement that uses decision-making to solve real life problems is a way for students to practice the core competencies of problem solving, communication and perspective taking. Based on the principles of 21st century learning, the teacher shifts from controller to facilitator and storyteller.

Teachers Changing Role

As stated previously, the BC Redesigned Curriculum (British Columbia Ministry of Education, 2018) was designed with the student at the centre. When teaching with the student at the centre, the classroom might look different than the traditional classroom with desks in rows. Students might be in groups to help facilitate discussions more easily (Gibbs, 1995). The students will become more engaged in their learning because the teacher will provide more choices and give the students more ownership over their learning (Butler, 2017). Lessons will be designed for inclusivity; so all students will be able to learn at their own level and with their own belief system. Berger et al. (2014) stated that assessment is the driver for student centred learning. If they know where they are going then it is easier to get there. If they don’t know where they are going it creates apathy and the students stop caring, which negates their true nature of curiosity.

Instead of teaching in front of the class, teacher’s need to redefine their role, allowing students to explore and learn deeper. Ritchard, Church and Morrison (2011) stated that a shift from teaching to learning needs to take place in the educational system. Teacher’s need to first
change their thinking before they can change their practice. How do we get our students to really learn the content, not just regurgitate the information that has been presented? First teachers need to begin to view themselves, as facilitators, coaches, networkers and collaborators (MacKenzie, 2016).

The role the teacher plays in the game is that of storyteller/facilitator, if it were Dungeon and Dragons (2014) the teacher would be the Dragon Master. The teacher will take the students through a story that will allow them to make decisions based on the values of their character. The game is allowing the students to be at the centre of their decisions while role-playing to help understand that people have different values, which enhances their engagement thus deepening their learning.

**Inquiry and Problem Based Learning**

Inquiry and problem-based learning are used together to create a student centred approach to learning. According to Harvey and Daniels (2009), inquiry is about framing lessons around questions developed by kids, giving the kids the tools to be responsible for their learning and focusing on the development of the kids’ thinking. Llewellyn (2007) stated that inquiry is basically the “scientific process” but adapted to other curricular areas. The inquiry method is designed around student choice and voice, which engages the learner.

McTighe and Wiggins (2013) defined inquiry as a way of being (p.viii). Traditional schooling has taken the curiosity out of children even though they are naturally inquisitive. Llewellyn (2007) stated that we need to redefine the school culture as being one of questioning and wonder. Inquiry teaching follows the constructivist-learning model, which creates opportunities for learners to create meaning from experiences, thus allowing the child to be at the centre. Mackenzie (2016) pointed out that inquiry allows teachers to be more inclusive in nature and it lets teachers celebrate the success of each diverse student in their classroom.
Problem-based learning uses inquiry as a platform to solve the problems. Problem-based learning as defined by Barrell (2010) “It encompasses a rethinking of the entire curriculum so that teachers design whole units around complex, “ill-structured” problematic scenarios that embody the major concepts to be mastered and understood”(p. 178). Problem-based learning allows students to be decision makers. When working with problems teachers can cross many different curricular areas, students will learn more because they have to think to apply their knowledge or learning (Wiliam and Leahy, 2015). Problems need to ask bigger questions than the one at hand, therefore, allowing them to cross the learning over to different areas (Curtis, 2001). Berger et al. (2014) discussed the learning targets being big ideas and able to cross more areas of the curriculum will benefit the student seeing how it applies in more than one situation. It negates the compartmentalizing of learning.

Due to the importance of inquiry and problem-based learning in emphasizing curiosity and engagement, the project specifically incorporates these aspects into the game. The game was designed for students to make decisions using “real world” problems. There are several rounds that are played in the game; each round the students will be trying to solve problems related to building a sustainable society. They will be using their characters values to assess which natural resources to use, save or trade. Their goal is to build a sustainable harmonious society together.

Cooperative Learning

At the top of the 1999 Fortune 500 “most valued” skills in 1999 was teamwork, the ability to work with others (Boaler, 2016). Aoun (2018) stated that as robots are able to take more and more of the skills jobs, the one job they cannot acquire is intrapersonal skills. Therefore, teaching “how to work with others” is an important part of 21st century learning.
Students often see themselves as competing against one another opposed to working together. Har (2013) stated “Cooperation among students-who celebrate each other’s successes, encourage each other to do homework, and learn to work together regardless of ethnic backgrounds or whether they are male or female, bright or struggling, disabled or not, is still rare”(p.3). Traditional classroom structures have promoted a more competitive atmosphere for learning. As educators we need to acknowledge the benefits of cooperative learning which according to Johnson and Johnson (2010) are: “higher achievement and greater productivity, higher quality relationships, and greater psychological adjustments”(p.202-203). The benefits of cooperative learning far outweigh the benefits of individual work where students compete against each other for personal gains.

Cooperative learning allows students to learn from each other. As written previously, Wiliam and Leahy (2015) stated that peer feedback is often more influential than teachers feedback and students often will act on the feedback given by peers. Cooperative learning requires feedback to be given and taken constantly. They need to create goals together and hold each other accountable for those goals. According to Har (2013) there are 5 principles that need to be included in cooperative learning: positive interdependence, individual accountability, face-to-face interactions, appropriate use of social, interpersonal, collaborative and small-group skills, and group process. These are the elements needed for cooperative learning to be successful. Therefore, it is not just a matter of teaching it, but the teacher needs to create a culture of working together and fostering the importance of, as Gibbs (1995) coined “a positive classroom climate and way of being together”(p.74). This includes inclusion or sense of belonging, valuing differences and working together creatively. If you lack these fundamental characteristics, cooperative learning will be very challenging to attain.
Due to the importance of this skill, the game created is a cooperative game that allows students to work together to make decisions. Each society will have 3-4 players depending on the class size. They will be forming a cohesive society, which will interact with the other groups in the classroom through game play. One important aspect of working together and learning is allowing a time and space for feedback to take place.

**Assessment for Learning**

Feedback is the one common feature of gaming and education. A game with no feedback is not engaging and can’t sustain the player’s attention (van Staalduinen, 2011). As gamers know, feedback is the thing that entices the player to keep playing. Feedback in games may be in the form of points, rewards, or consequences from a decision. It can be against another player, against the game, or various other measures that might have been put in place by the designer.

The definition of feedback according to Butler et al. (2017) “Feedback is information about performance generated by teachers, peers, or students themselves that is fed back to learners to give them a sense of progress and inform further actions and learning”(p.134). Butler et al. (2017) goes on to explain that feedback must cause the students to think. This definition can hold true in the gaming world as well. The definition from van Staalduinen (2011) stated “The game gives the learner feedback on the outcomes of his actions. This provides users with opportunities to learn from previous actions”(p.105). As you can see from the two definitions the key is that feed back helps the learner mover forward whether it is to beat the game or learn in another capacity in a school setting.

Feedback needs to be given as the game or learning is taking place to keep the player/learner engaged. In the educational world this is termed as formative assessment (Heritage, 2013). In gaming, the game needs to have a goal or objective. The player needs to know the win condition (van Staalduinen, 2011). How do they win the game? In learning, the
same is true. This is given to the students in the form of learning targets and success criteria (Berger et al., 2014). It is important for the students to form goals so they know the direction they are going (Heritage, 2013). Reflection is a key component to SRL and in creating an engaged learner. Butler et al. (2017) stated students need to be able to reflect on what went well. What was their thinking around this decision? This allows deeper learning to take place. Feedback is an important part of the learning process. Feedback comes from peers and the teacher and is important for the learner to move forward (Berger et al., 2014, Butler et al, 2017).

The game design has incorporated a time for feedback and reflection after every round played so students can share their thinking and strategies, thus creating learning opportunities. They will be able to assess what went well and how they might improve their game play. Also they will be able to learn from other groups’ strategies and thinking, because the facilitator will debrief as a class at the end of each round.

**Rationale for Game Design**

Pulling all of the pieces together of deep learning and games, the design was developed for the 21st century classroom. In the 21st century gaming is a part of our children’s culture. It is the thing they talk about on the playground and it is part of their social structure as they play online games with each other from their own homes. As you have read previously, evidence-based educational practices and gaming share many attributes.

Therefore, the game design was created with the child in mind and the best way to help them learn through a game that has feedback built into it, is with the teacher being the facilitator. The game has the added feature of reflection which many games don’t incorporate into the design however, Kim, Chang, Deater-Deckard, Evans, Norton, & Samur (2017) stated games for educational purposes need to focus on feedback to deepen the learning and reflection is a key
component of feedback. Reflection will allow the students to developing better strategies of
game play, yet many games aren’t able to use reflection to provide meaningful learning.

The game begins with a series of lessons that teach cooperative learning. As stated
previously, cooperative learning needs to be taught so that students will be successful working
with others. The platform of the game is value-based decision-making, so each person in the
group receives a character. Using role-playing to decide what that character values, the teacher
leads them through problems. They must make decisions based on the values of their character
along the way. They will have points that they will use which will give them feedback to how
they are doing in the game. A decision-making wheel was designed to help them use a step-by-
step process to making decisions as a group. After each round, the teacher will be able to help
them reflect on their decisions and the process their group went through to arrive at the
decisions; thus teaching core competency skills as the game continues reinforcing, critical
thinking, perspective taking and collaboration all the while engage the students.
Chapter 4: The Project Design

For the game to be successful and for the students to practice decision-making, they must have been taught how to work cooperatively and understand what they believe and value. Therefore, the following created pre-game lessons are designed to help students learn to work collaboratively and get to know themselves better, which will help facilitate successful gameplay, however, they are optional. The target age group for these lessons are grades 5-8. This design project is an original, unpublished, independent work by the author, Kristen Vogel. The Decision Wheel section was created with Jen Slinn and used with her permission. Also, the assessment rubric was created by Delta School District #37 and used with their permission.

Part I Pre-game lessons

Understanding yourself and those around you

Lesson one:

Learning Target: I can identify some of my strength and stretches.
Begin by develop a sense of self: Who Am I?

Activity:

Materials: paper and coloured pencils

Procedure: Explore strengths and stretches through academic subjects, due to the fact students are familiar with them. Have students raw a learning map with a thick arrow for strengths and a thin arrow for stretches. See Model A attached. Now talk about what core competencies those subjects have. Now have them draw a map using the core competencies: Thinking: critical thinking, synthesizing information, creative thinking; Communication: mechanics of writing, ideas of writing, sharing ideas, listening to others, speaking in front of others; Social and Personal Awareness: getting along with others, resolving conflict. See Model B attached.
Conclusion: If your class is feeling comfortable with each other, you can have them share out as a class. If not, you can have them present it to you as an exit ticket.
Lesson Two: Learning about ourselves through Myers-Briggs

Learning Target: I can look at different personality types and think about my personality characteristics and everyone has different characteristics.

Activity:

Materials: Computers, pencil, paper
Procedure: Look at the Myers-Briggs to help them think of their personality:

- Introvert vs Extrovert
- Sensing vs Intuitive
- Thinking vs Feeling
- Judging vs Perceiving

This document helps explain the personality types.
http://www.humanmetrics.com/personality/type

This is a worksheet that might help them think about their personality.
http://worksheets.edu-resource.com/free-personality-tests-for-kids.html

This is an online test which is an adult test but can be modified by the teacher as you lead your class though it.
https://www.16personalities.com/free-personality-test

Conclusion: Ask them to write one thing they learned about themselves and their personality.
Lesson Three

Learning Target: I can discover the 8 multiple intelligences and discover that intelligence comes in many different ways.

Activity:

Materials: coloured pencils, paper, circular cut out or object students can trace, black marker

Procedure: Watch the video of the 8 Multiple Intelligences by Howard Gardner:
Play: https://www.youtube.com/watch?v=ITgA0LBIgA&list=PLvjwZnxcQmPwIFYv3F3zUGlk4HgXY5AM5

This is a quiz the students can take: https://kids.lovetoknow.com/wiki/Multiple_Intelligence_Test_for_Children

After students have taken the questionnaire, they can calculate the intelligences into percents and create a pie chart of their multiple intelligences. Please see image.

Conclusion: After you have completed the lesson have them share with a small group.
Lesson Four  Discovering Character’s identity through children’s books

Learning Target: I can read a children’s book and figure out the characters identity by what they do and say.

Activity:

Materials: a class set of different children’s books, paper, pencil

Procedure: As a class, brainstorm identity. Read them a children’s book and pick a character and develop a web on the board. Now give the students a children’s book to read. After reading their book, develop a web about a chosen character's identity. What makes up their identity? How do you know?

Conclusion: Have students make a web about their own identities and share with a partner.
Creating a Culture of Collaboration

Lesson One

Learning Target: I can use the discoveries I learned about myself to help my classmates understand me better.

Activity:

Materials: Paper and pencil

1) Create groups of 4 students that will be working together for the entire term.
2) Have them come up with a team name.
3) Reflect on the process. How did you come up with your name? Did anyone take control of the group? How did you decide on the name? Was there anyone in your group who didn’t talk or share? Why didn’t they share?
4) Have them create Norms for the group based on values. What is important for them when working with others? Bring that to your group. Using these values create Group Expectations. How do your group expectations show what you collectively think is important (values)? How are you going to communicate as a group? How are you going to make decisions?

<table>
<thead>
<tr>
<th>Name</th>
<th>What is important to you when working in groups?</th>
<th>What could a group expectation be?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgia</td>
<td>I get to share my idea.</td>
<td>Everyone has the opportunity to share</td>
</tr>
<tr>
<td>Devon</td>
<td>Everyone does equal amount of work</td>
<td>We will divide work and everyone is responsible for their own work</td>
</tr>
<tr>
<td>Sukhvir</td>
<td>People don’t boss me around.</td>
<td>We use language like I am wondering…. I think...</td>
</tr>
<tr>
<td>Aneesha</td>
<td>We stay on task and get our work done.</td>
<td>We have a person who is the task master and reminds us if we go off task.</td>
</tr>
</tbody>
</table>

5) Now based on values what roles could your group have.
   - Facilitator- so everyone gets to speak
● Timer - to keep us on track as we work and also deadlines
● Communicator - person who talks with teacher but also reminds people how to speak respectfully.
● Task divider - helps decide who does which part of the project.

Conclusion: Reflect on the process. How did it go sharing? What did you learn about the people in your group? What are your expectations? What are your roles?
Lesson Two

Learning Target: I can work in a group and be aware of group dynamics and our expectations.

Activity:

Materials: paper, computers and tape measure

Procedure:

1) Tell the groups they will be making paper airplanes. Before they begin, they must share their strengths and stretches in this group activity. Example:

<table>
<thead>
<tr>
<th>Name</th>
<th>Strength</th>
<th>Stretch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgia</td>
<td>I can research</td>
<td>Sometimes I want to do too many things and I get side tracked</td>
</tr>
<tr>
<td>Devon</td>
<td>I am good at following instructions.</td>
<td>I sometimes try too complicated designs and then get frustrated.</td>
</tr>
<tr>
<td>Sukhvir</td>
<td>I can use technology to record and photograph process.</td>
<td>I goof around sometimes.</td>
</tr>
<tr>
<td>Aneesha</td>
<td>I can help problem solve and keep us on task</td>
<td>I am bossy sometimes.</td>
</tr>
</tbody>
</table>

Goal: To talk and finish assignment on time

- Once your airplanes are built, be sure to take pictures, label and make predictions about which will fly the longest, 2nd longest and shortest.
- Conduct an experiment where each plane is launched 5 times and measurements are recorded using Google Sheets.
- Determine your results and provide some analysis.
- Put a brief Google Slideshow presentation together using all of the above information.
- You will be presenting to the class.

After project, look at your expectations that you created as a group. Review models of group
expectations. What is good about each one? How can you make them more specific to meet the real needs of your group? What worked well in group? What were stretches for your group? Change expectations so that they are more helpful for your group.

Conclusion:

Have them complete their self-assessment of their group work. What evidence did they provide to determine that they did their part? See attached following sheet.
Self Assessment Sheet

Name:

Learning Target:

| I can work in a group and be aware of group dynamics and group expectations. |

<table>
<thead>
<tr>
<th>Beginning</th>
<th>Developing</th>
<th>Accomplishing</th>
<th>Extending</th>
</tr>
</thead>
</table>

Where are you on the arrow? Please put an X.

Success Criteria:

<table>
<thead>
<tr>
<th>Evidence you met it</th>
<th>Criteria</th>
<th>What you would do differently?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I can work positively with my group.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I worked on one of my stretches.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I performed my group job of __________.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I followed my groups expectations.</td>
<td></td>
</tr>
</tbody>
</table>
Decision Making Skills Using the Decision Making Wheel

Lesson One

Learning Target: I can become familiar with the Decision Wheel

Introduction

The Decision Wheel is a tool that helps students work through a systematic decision making process. We make thousands of decisions every day, some of them as automatic as which pair of shoes to wear, and some of them as tricky as a complex as, should we take the tolls off bridges. Students may need help in recognizing when it is appropriate or necessary to slow the automatic decision making process down and work through decisions in a thoughtful, systematic way. They may need guidance and tools for working through value based decisions, easy or complex.

Background

Decision Making Skills are essential in navigating life. It is a well-studied area rich in resources. One framework for the decision making process is shown here. For this activity, students will work from this framework.

One important thing to note is that each of these stages in decision making can take anywhere from minutes to months to work through. You can also revisit decision choices you made and see if your values have changed over time. This process is dynamic and may be recycled through at any stage.

When teaching these skills it is important to consider your objectives before getting started. Each stage may need unpacking and examination. You may not be able to go through the whole process in one lesson until the students are familiar with the stages and associated vocabulary.

In this guide, we provide you with a detailed overview of the Decision Wheel, a framework for breaking down a complex decision making process. We have included various tools to help break down the various stages. This framework can be applied to curricular units or it can be used in authentic classroom problem solving situations as they arise. Decision Wheel involves unpacking values, determining fact from opinion and deciding whether or not there is sufficient and reliable evidence to make an informed decision, as well as working through the sometimes sensitive process of weighing consequences and determining trade-offs. It requires familiarity with vocabulary and stages of the decision making process before it can be effectively applied as a tool.

Because this process can be daunting to jump into and break down, we provide you with a few components to consider.

1) Understand the associated vocabulary
2) Examine each stage in isolation. Perhaps make each one an assignment as you see an opportunity.
3) Create a hypothetical scenario your students can use to practice Decision Wheel.
4) Use the Basic Decision Wheel to familiarize students with the basic process and some of the key vocabulary. This tool is also excellent for using when decisions need to be made through collaboration and are not too complex.
Using Basic Decision Wheel

As mentioned above, this framework is designed to be an introduction to value-based decision making skills. You can use this method to familiarize students with the basic process and some key vocabulary. This process is also excellent for when decisions need to be made through collaboration and are not too complex. You will find this version quicker and feel more like a game format. Please notice the connections of these stages to the full version of Decision Wheel model so that you can help your students make those connections as well.

Tools for Using this Framework
- Basic Wheel (Teacher Version)
- Basic Wheel (Student Version)
- What Matters to Me Card
- Options Cards

Steps of the Wheel
1. What decision do you need to make? → Students need to clarify, as a class, the decision that needs to be made.
2. What matters to you about this decision? → Students will decide what is important to them about the issue and could be used to guide their choice. This is a step to think about personal values in the context of the specific decision. This should be a quick class discussion to generate a few ideas and then each student writes down a few thoughts on their “What Matters to Me” card. For students not yet ready to write, the card can be preloaded with options for them to highlight.
3. What are the possible options you have? → Using the “Options” cards, students write out the possible options they have in making this decision. Again, these can be preloaded for students who are not ready to write. You may want to have some blank ones handy in case students come up with new ideas that are not preloaded! Cards can also be laminated and used with whiteboard markers, whatever works!
4. What do you like about each option and why? → Students now need to connect back to their “What Matters to Me” card and work on the back side of their “Options” cards. They may find once they see the options that they have more ideas about things that matter to them and could be affected by the choice. This step is the beginning stages of understanding that we make decisions based on our values. Students are assigning importance to each option in this case. It should be done in written form, but younger students can practice this step by having a conversation with themselves about each options. They should be identifying and weighing (thinking about the importance of) the positive and negative impacts of these choices. As they practice this stage it will eventually develop into sorting out facts and opinions and gathering additional data and evidence and breaking down assumptions. But for an introduction, the most important part of this stage is for students to unpack WHY they like or dislike or are ambivalent about the options - this unpacking will lead them back to their values. They should refer to the “What Matters to Me” card they filled out, too, as they work.
5. What do others like about each option and why? → In this step, students will now pair up with another student and discuss their “whys”. Students should review each option with their partner. This step is meant to compare and consider another perspective and thus
extend a student’s thinking. Students should use a different coloured pen or marker for this step to record notes on their own cards that extended their thinking - something they had not previously considered. If there are options one student has that the other does not, they should have blank cards handy to add the new option to their pile. Again, for students not yet writing, this will need to be entirely oral, but students should practice repeating and paraphrasing to help them remember what thinking extensions they encounter while sharing and listening. Students should rotate through at least two partners before moving on to the next step.

6. How can you balance what matters to you and to the members in your group? → Students now form into small group. The purpose of this step is to practice the skill of making trade-offs. In the decision making process, parties rarely get their first pick or everything they initially wanted because opposing sides often have to come to some sort of compromise. Making sure you have gathered as much accurate information as possible, examined your own values and listened to the values of others, is all the set-up for coming together to make the decision itself. It is okay if there is no consensus, not everyone will wholeheartedly agree when having to make trade-offs. Students need to consider, instead, what is the best outcome after hearing and weighing all of the different values in the group? What decision can now be reached that meets the most important values of all parties? What decision can now be made that everyone can live with? Students may eventually graph this step out in the Value-Based model, but for here, the cards are an excellent manipulative.

Students should review their cards before sitting down in the group and eliminate the cards that are not important to them at this point. They do not even need to bring those to the table. They sit down in the group with the option cards in their hands that are viable or desirable to them. Options they are ok to accept or happy to endorse. Each student in the group places their cards on the table so that the students can share and examine the whole pile. First, they can eliminate duplicate options. Then comes the tricky part. They need to engage in respectful conversations about how to eliminate all but one option. This is where students will need support and guidance. How do they go about respectful conversation?

They will need to take turns sharing their value attachment to each option and discuss why or why not that option is the best one for the group. It is no longer just about them and that may be a tough understanding to come to. They need to decide if they endorse (happily behind), accept (it is not their #1, but they can live with it) or oppose each option. A consensus is reached when all parties can accept or endorse the chosen option. This is where students will need to negotiate.

What decision works best? → Now it is time for the class to come back and explain their journey through the process. Did they come to a consensus based on all of the trade-offs? How did it go?

This journey will get easier with practice! The goal is to eventually develop this process into a thinking routine. Thinking routines develop and get more and more effective with repetitive use.
Lesson Two

Learning Target: I can become familiar with the Decision Making Wheel through a food choice activity.

Activity:

Materials

Copy of Decision Wheel for each student, give them two “what is important to me” cards and a pencil

1) Brainstorm the different ways that we make decisions. Example: You are going over to your friend’s house to work on project. How do you choose the food you are going to eat after school today with your partner? Answers might be: taste, health, time of day, already made, easy to grab, filling

2) Put the class into partners.

3) Now have them fill in the “what matters to me card”, “What matters to you about this decision?” This should be done individually. Think about the brainstorming you did as a class.

4) Now have them go to the next section on the wheel. In your partnership pick a person whose house you will be going to after school, “What are some possible options you have for food after school?”

5) Now go to the next section on the wheel and look at your cards. “What do you like about each choice and why?”

6) Now go to the next section on the wheel. “How can you balance what matters to you and your partner?

7) Now go the next section on the wheel. “Which option works best for you?” “Which option can you agree on?”

Conclusion:
It is important that you have the students reflect on the process. How is this decision making process different than other options? What did you learn about your partner? Were you able to come to an agreement on what to have for a snack?
Part II   The Game

**Decisions, Decisions, Decisions Game**

Decisions, Decisions, Decisions

A classroom game for educators to teach value based decision-making as well as having them critically think about the environment and how decisions might impact their happiness.

Grade: 5-8.

Setting:

There has been a new universe discovered and the technology has been developed to transport humans to another galaxy. The planet is very similar to earth and social scientists want to see if people from different cultures and values will be able to live harmoniously and create an environment that humans can thrive in. Each civilization must learn to work together as a team to make decisions about growing food, shelter and protecting the environment and use the natural resources that they have been given.

Components:

Players: Teams of 3-4 players

Game board: Each group of players will receive of 8 x 11 piece of paper and they will plot a river, mountains, a lake, forest, grasslands, and ocean.

Cards: Character cards (8)
- Resources Cards: fishing supplies, clean drinking water, fertile soil, cows/goats, wood, wind turbine, fence, bricks, boat, water wheel, bricks, chickens, crop fields (14)
- Happiness cards (random variable) (12)
- Decision cards: These cards bring action to the game. They may have positive or negative consequences to the players (24)

Round Sheet: These will be put in chronological order and will be used to keep track of the rounds that are being played and the moves each civilization makes.

Final score sheet

Each round a series of ACTIONS will be taken in this order:

1. Problem or decision that will need to be made.
2. Use the decision making wheel to help make a value based decision based on character and group goal of creating a successful society.
3. Purchasing of resources. Must feed all group members each round.
4. Draw a Decision card-perform action required by card
5. Draw a people’s happiness card. (begin on round 4 of game)

Have players choose a character. They must read the card carefully because they will be trying to base their decision on the values of their characters.
After selecting their card, they will need to fill out the numbers for their character cards. They will have 20 points that need to be distributed based on their character and what they think they may value. Once these points are distributed you must not change them through the course of the game.

Now as a team add up the points. For example, what are your teams total points for education, natural resources, wealth, relationships, and community rules/laws. Now based on the outcome of the compilation of points, the team must define what a successful society is to them.

Suggestions is to play a round a day. Reflection of the process is a big part of self-regulated learning. After each decision the question of: tell me about your decision making process. What part of your decision-making was challenging? Who took the role of facilitator in your group? Was that a decided role by the group?

Teacher is the story facilitator.

The story:
You have all decided that you need a change and an adventure. There has been a new universe discovered and the technology has been developed to transport humans to another galaxy. The planet is very similar to earth and social scientists want to see if people from different cultures and values will be able to live harmoniously and create an environment that humans can thrive in. Each civilization must learn to work together as a team to make decisions about growing food, shelter and protecting the environment. You will be buying and selling resources to build a successful society. Remember that each group has a different definition of what a successful society entails. You will be working together to meet your definition.

Round 1: Teams decide on a name for their civilization using the decision wheel.
• Introduce how to use the decision wheel to help them in their decision-making processes that they will encounter. What part of your decision-making was challenging? Who took the role of facilitator in your group? Was that a decided role by the group? What part did each member take? Was that effective?

Round 2: Will you choose a leader? If not, how will things be run?
• Questions to use when reflecting: Which groups chose to have a leader? What was your thinking behind that thought? What did people value about leaders or no leaders? If you are not having a leader, how are you going to manage your civilization? Did you consider your values in your decision?

Round 3: Where will you plot a river, mountains, a lake, forest, and grasslands?
• Questions to use when reflecting: What is your thinking behind where you put your physical features? Who played which role in your group? Was that decided on before? Did you consider your values? How are you accomplishing your goal of being a successful society?

Round 4: Where will you build your shelter? What resources will you purchase to build them? How many shelters will you build? Will you build any?
• You will be given $100 to spend on resources you will need. The students will begin their “ACTION” sequence. Questions used to reflect: How did you decide what to spend
your money on? What did you individually value? What did you as a group value? How did you work towards your goal?

Round 5-13: Repeat until round 13.

If player draws a DECISION CARD and does not have enough money, they must sell their assets at purchased price to solve the problem that has arisen.

End of Game/Final Scoring: At the end of the 13th round, give the assets a monetary value using the purchasing price and the money that the teams may still have in their possession. See final scoring sheet. For each happiness point, you will receive $10. Now total all of money together. Each civilization gets $200 if they can support how they accomplished their goal. The civilization with the most money wins the game.
Character Cards

Name: Jas Singh  
Job: Marine Biologist  
Ethnicity: East Indian  
Age: 33  
Religion: Sikhism  
Hometown: Punta Gorda, Belize

Jas has worked in the field of Marine Biology for 10 years. His expertise has been on invasive species and how they impact their natural food chain. He has been especially interested in the Lion Fish which has invaded the Caribbean Sea. The Lion Fish has no natural predator and is multiplying at a rapid rate and eating many different types of fish species and they are becoming extinct. He has been trying to find a solution to the BIG problem. He has come up with a few the government needs to approve them. He comes from a large family. He has 3 brothers and 5 sisters. He is in the middle of them. He believes strongly in his religion and practices daily.

Terms- You have 20 points that you need to distribute based on your character and what you think they value. Once these points are distributed you must not change them through the course of the game.

Values
Education:
Natural Resources:
Wealth:
Relationships:
Community rules/laws:
Name: Isabella Gomez
Job: Innovator
Ethnicity: South American
Age: 28
Religion: Catholic
Hometown: Rio de Janeiro, Brazil

Isabella, otherwise known as Izzy, is an innovator. She thinks about problems and fixes them in unique ways. For example, she has started working on a self-piloting car. She realizes that some people commute very far to their jobs and could use that time to work. She is able to see the “big” picture of decisions that are made and how everything is connected and the impact that a decision will have over the development of a civilization. She is an only child and she was raised Catholic but doesn’t go to church much because she plays in many sports activities on the weekend.

Terms- You have 20 points that you need to distribute based on your character and what you think they value. Once these points are distributed you must not change them through the course of the game.

Values
Education:
Natural Resources:
Wealth:
Relationships:
Community rules/laws:
Name: Banjoko Okafor
Job: Coffee grower
Ethnicity: African
Age: 43
Religion: Universal Church Triumphant of the Apathetic Agnostic
Hometown: Jimma, Kaffa, Ethiopia

Banjoko’s family has been growing and exporting coffee for 50 years. He has grown up on the plantation and learned from his father how to grow and roast the beans to perfection. His knowledge of soil and what nutrients plants need to grow is vast, being he has traveled to various parts of the world and studied agriculture at Oxford University in the UK. He has 1 older sister and 1 younger brother. He is the only one educated. Due to his rejection of his family’s faith of Muslim, he was rejected. However, his sister has begun to reach out to him again because his parents are aging and their health is declining.

Terms- You have 20 points that you need to distribute based on your character and what you think they value. Once these points are distributed you must not change them through the course of the game.

Values
Education:
Natural Resources:
Wealth:
Relationships:
Community rules/laws:
Name: Nasim Rahal  
Job: Engineering  
Ethnicity: Middle Eastern  
Age: 51  
Religion: Muslim  
Hometown: London, England

Nasim has worked in the engineering field for 20 years and has developed many systems involving water. She has created irrigation systems, as well as, water purification systems. However, engineers are knowledgeable in many different structure of systems. She learners by trial and error. She is an only child and was given many advantages in life, such as, private schooling and never had to worry about money. She is a practicing Muslim but understands how the western world views Muslims, however, she continues to wear a hijab every day.

Terms- You have 20 points that you need to distribute based on your character and what you think they value. Once these points are distributed you must not change them through the course of the game.

Values  
Education:  
Natural Resources:  
Wealth:  
Relationships:  
Community rules/laws:
Name: Tatsuo Ono
Job: Pathologist
Ethnicity: Asian
Age: 35
Religion: Buddhist
Hometown: Tokyo, Japan

Tatsuo has traveled extensively and researched diseases that are spreading around the world such as Ebola virus. He has worked for the World Health Organization to help them understand that Ebola is not an airborne virus. He was a lead researcher on a team developing a cure for Ebola but at this time it has not been successful. He was adopted at a very young age from China and has one older brother. He has always been curious about his birth parents.

Terms- You have 20 points that you need to distribute based on your character and what you think they value. Once these points are distributed you must not change them through the course of the game.

Values
Education:
Natural Resources:
Wealth:
Relationships:
Community rules/laws:
Name: Constantine Popov
Job: Communication
Ethnicity: Russian
Age: 38
Religion: Russian Orthodox
Hometown: Vladivostok, Russia

Constantine has been working with a Russian hockey team in publicity and communications. He often has to deal with the media and press around coaching changes and players dissatisfaction with the organization. His role is to keep the media showing the team in a positive light and also resolving any conflict that might be encountered, throughout the organization. He is very inspirational and charismatic. He comes from a very supportive family. He has one younger sister.

Terms- You have 20 points that you need to distribute based on your character and what you think they value. Once these points are distributed you must not change them through the course of the game.

Values
Education:
Natural Resources:
Wealth:
Relationships:
Community rules/laws:
Name: Talia Smith  
Job: Construction worker  
Ethnicity: Snuneymuxw- First Nations  
Age: 22  
Religion: Spirituality of Nature  
Hometown: Delta, BC  

Talia has always been interested in working with her hands and building things. She began building houses with her mother when she was small. She has volunteered with Habitat for Humanity and built some affordable and energy efficient homes. She was taught how to weld at an early age. She enjoys spending time in nature and believes in the balance of nature. She is an only child of her mother but has many stepsiblings. Her mother is a residential school survivor. 

Terms- You have 20 points that you need to distribute based on your character and what you think they value. Once these points are distributed you must not change them through the course of the game. 

Values 
Education:  
Natural Resources:  
Wealth:  
Relationships:  
Community rules/laws:
Name: Emily Vogel  
Job: Herbalist  
Ethnicity: European  
Age: 60  
Religion: Bahai Faith  
Hometown: Lourmavin, France

Emily has been studying alternative medicine for many years. She has developed a wonderful garden of different herbs that help her experiment with different mixes to help people relieve stress, headaches, stomachs and pain relief. She has been very successful in healing people. Her family comes from a long line of healers. She also has a sixth sense of foreseeing into the future and has avoided many situations because of this unique attribute. She has three children who all live near her but Emily want to explore and try new things.

Terms- You have 20 points that you need to distribute based on your character and what you think they value. Once these points are distributed you must not change them through the course of the game.

Values  
Education:  
Natural Resources:  
Wealth:  
Relationships:  
Community rules/laws:
### Resource Cards

<table>
<thead>
<tr>
<th>CHICKEN</th>
<th>CROPS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$10 per one chicken. One chicken feeds 1 person per round. After 3 rounds, it feeds 2 people per round.</strong></td>
<td><strong>$20 feeds two people per round.</strong></td>
</tr>
</tbody>
</table>

[Chicken image](https://example.com/chicken)  [Crop image](https://example.com/crop)
<table>
<thead>
<tr>
<th><strong>FISH SUPPLIES</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$30 for two rods feeds 2 people per round</td>
<td></td>
</tr>
<tr>
<td>$80 for a net feeds 4 people for 2 rounds</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CLEAN DRINKING WATER</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>$100 this will last for the entire game</td>
<td></td>
</tr>
</tbody>
</table>
## FERTILE SOIL

$80 $80 If you buy a field you get an extra one. You can sell fields to other civilizations for $15.

## COWS

1 cow costs $50. Must wait for 3 rounds before you can eat it. Feeds whole group for 4 rounds.
<table>
<thead>
<tr>
<th>GOATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 goat costs $20. Must wait 1 round for it feed civilization. Feeds whole group for 2 rounds.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WOOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>$20 shelter for 2</td>
</tr>
<tr>
<td>$40 shelter for 4</td>
</tr>
<tr>
<td>$60 shelter for 6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BRICKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>$30 2 people</td>
</tr>
<tr>
<td>$60 4 people</td>
</tr>
<tr>
<td>$80 6 people</td>
</tr>
<tr>
<td>FENCE</td>
</tr>
<tr>
<td>---------------------------</td>
</tr>
<tr>
<td>$10 buys a chicken pen that can hold 2 chickens.</td>
</tr>
<tr>
<td>$20 holds 1 cow</td>
</tr>
</tbody>
</table>

Fence: $10 buys a chicken pen that can hold 2 chickens. $20 holds 1 cow.

Boat: $60 per boat.
<table>
<thead>
<tr>
<th>EDUCATION</th>
<th>WIND TURBINE</th>
</tr>
</thead>
</table>
| $10 per book  
Buy 10 books and you get  
$50 every round | $50 If you buy it, you will receive  
$30 after every round. |
WATER WHEEL

$50
If you buy, you will receive a $30 bonus after each round.
### Decision Cards

<table>
<thead>
<tr>
<th><strong>Cholera Outbreak</strong></th>
<th><strong>CURE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Play a cure card or lose $10 per person</td>
<td>If Tatsuo is one of your characters, this card negates any disease/virus/bacteria</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CURE</strong></th>
<th><strong>CURE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>If Tatsuo is one of your characters, this card negates any disease/virus/bacteria</td>
<td>This card negates any disease/virus/bacteria</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>CURE</strong></th>
<th><strong>RESTORE DAMAGE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>This card negates any disease/virus/bacteria</td>
<td>This card is use for an earthquake, rainstorm, and landslide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>RESTORE DAMAGE</strong></th>
<th><strong>RESTORE DAMAGE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>This card is use for an earthquake, rainstorm, and landslide</td>
<td>This card is use for an earthquake, rainstorm, and landslide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Chicken Pox Outbreak</strong></th>
<th><strong>Rain Storm</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>If you have Emily in your group, you are spared. Otherwise, you can use a cure card or must pay $10 per person.</td>
<td>Anything 5 cm from the river on your board is destroyed. If it touches a field the whole field is destroyed. If it touches a house, the whole house is destroyed, etc. If you have a flood restoration card use it now.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Flood Restoration Card</strong></th>
<th><strong>Flood Restoration Card</strong></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>Landslide</strong></th>
<th><strong>Infected Fish</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>10 cm around the mountains is destroyed.</td>
<td>Fish cannot feed your civilization for 3 rounds</td>
</tr>
<tr>
<td><strong>A New Species</strong></td>
<td><strong>Wild Coyotes</strong></td>
</tr>
<tr>
<td>--------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>A new species was discovered in the ocean and it has no natural predator. If Jas is one of your characters, you receive $100 for his problem solving skills.</td>
<td>They ate all of your chickens. If you had fences, they were protected.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Fire</strong></th>
<th><strong>Earthquake</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>House made with wood have been burnt to the ground and need to be rebuilt.</td>
<td>All houses have been destroyed. If you have the character, Talia you will be spared 2 houses.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Aphids</strong></th>
<th><strong>Over Fishing</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aphids have attacked the field and you have lost all of the fields you have bought. If Banjoko is one of your characters, due to his knowledge in agriculture he knows a natural way to get rid of them. Your crops are saved.</td>
<td>If you bought a net, you have unfortunately overfished your river. You will lose fish as your food for 2 rounds.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Sewage Leak</strong></th>
<th><strong>SARS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Your sewage ran into your river and now your drinking water is contaminated. If you purchased, clean drinking water you are safe. If not you must purchase immediately.</td>
<td>A member of your civilization was bitten by a bat and this respiratory disease was contracted. Play a cure card or you must pay $10 per person.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Soil</strong></th>
<th><strong>Education</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The soil has been planted too many times with the same crop. It no longer has nutrients. If Banjoko is one of your characters, one field has been saved.</td>
<td>If you bought 5 or more books you can use this card to elevate on problem you have encountered.</td>
</tr>
</tbody>
</table>
### People’s Happiness Cards

<table>
<thead>
<tr>
<th>Your civilization’s members were able to agree where to build the school. Combine all of your education value points.</th>
<th>Discuss with your civilization how you will deal with human waste. If you can come up with a solution, you will receive 50 bonus points.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Having wealth to trade with other civilizations is important as a civilization grows. Combine two players’ wealth score.</td>
<td>There has been friction in your civilization over when to kill a chicken for food. You will lose 20 happiness points.</td>
</tr>
<tr>
<td>Relationships and communication are so important in building a happy society. If your relationship values combined was above 100, give group 125 happiness points.</td>
<td>Two people are arguing about religion. There is a great divide among the civilization on what to believe. Lose 75 happiness points.</td>
</tr>
<tr>
<td>Roll the dice and if education was your highest value multiply roll of dice X value of combined education points</td>
<td>Discuss as a group, what is the most important part of value based decision making. If your answer is acceptable to your teacher roll the dice and multiply time 10.</td>
</tr>
<tr>
<td>Everyone in the civilization pulled together and made a feast of celebration. Add 75 points to your score.</td>
<td>If your group chose a leader, roll the dice and if you roll an even number they are doing an excellent job and you receive 75 points. If they rolled an odd number you will lose 75 points. If you did not chose a leader, roll the dice and odd number you receive 0 points and even number you receive 75.</td>
</tr>
<tr>
<td>If you have the character Nasim, she has designed a water system to irrigate the crops so you no longer have to use buckets. Bonus $200</td>
<td>If Izzy is one of your characters, she has just developed an invention of how to use algae as a fertilizer, so food is growing very well and people full. Bonus 125 points.</td>
</tr>
</tbody>
</table>

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### Score Sheets

- [https://docs.google.com/document/d/1rTDjYoIoQ461RNuXNyA4JoIv8Qbf8O2X8vrUR0PY/edit](https://docs.google.com/document/d/1rTDjYoIoQ461RNuXNyA4JoIv8Qbf8O2X8vrUR0PY/edit)
- [Assessment Sheet for Decision-Making](https://docs.google.com/document/d/1NuKk0FM_rLfbLhEEaMbThf7KstVymfc4YkkTJjHyMY/edit)
Chapter 5: Conclusion

I have decided to use Timperley’s (2014) questions designed for reflection for teachers and students to write my conclusion and self reflect on my learning.

What I learned?

My research and involvement with Compass Resource Management, Robin Gregory, and Delta School District has really brought to my attention how important the skill of making decisions is in our society. As I researched the core competencies, I discovered that all of the competencies are part of decision-making based on values. My journey has led me to understand that kids always just want to vote on a decision and some kids just follow the pack. Is it because they want to? Or because we as educator have not shown them another way to make decisions.

When I began teaching my class about values and their identity, they loved discovering about themselves. Discovering their strengths and stretches was new to them. The topic of self-discovery never grows old and we can teach it year after year. It helps our students become familiar with who they are and what they believe and based on those beliefs, what they value. Without this important part, we will continue to vote and never really be satisfied with the outcome.

I asked my class what is the difference between “value-based” decision-making and voting. Their responses included: “we get to talk about it” and “we have more to say in the outcome”. These responses inspired me to continue to develop the understanding about value-based decision-making because I think it will make huge difference in their lives and our society.

How did go?

As I embarked on this journey of research and trying out my game, I was excited by the potential that this could have in student’s lives, even in my own life. I realized that we teach
critical thinking and creative thinking in so many areas of our content but we are missing the link of how to make decisions. Yet, it is desperately a skill needed as we move forward in our society and our problems get more complex. There are also many more perspectives than ever before because we are now a globalized society and that needs to be honoured. However, the challenge is, “how do we teach this concept to kids” and “how do we show the teachers in our school district that this is a vital skill?”

As I invented a game that drew in role-playing, values and perspectives, I didn’t front-load them enough in the process of how to make decisions. The kids got lost in the pros and cons. My hunch is that: the kids had to think too hard about the pros and cons and they hadn’t practiced enough. Also, voting as a form of decision-making is so ingrained in our society it is hard to break the habit. Another factor is that I was still learning how to use decision-making based on values in my own life that I didn’t understand the pitfalls before teaching it.

The kids enjoyed the game and were highly interested and invested. However, there are glitches in the game around the points system. I feel like the framework and idea of the game are good, but I needed help in the gaming portion to make it flow properly. The kid’s feedback included: they enjoyed buying things; they liked the decision cards and how bad things happened. However, the confusing part was the rules. There were many challenging aspects to the developed lessons and game design but overall worth more time and effort to work out the glitches and try again.

The other aspect of the game that became very evident was the ability of the students to work as a team. Many were able to because of the work we had all year setting up and honouring the process of working with others and how challenging that can be. Although the lessons at the beginning of this are optional, I feel that they are very important for the game to be successful.
Where to next?

According the Wheatley (2012) the way to get change to happen is through small groups of people. Our district has started with a small group of people and invested in their ideas but now it is time to branch out. This will be the hard part of having enough people who are interested to change their practice to incorporate value-based decision-making. With the BC redesigned curriculum, it might be the perfect time to introduce it to a larger group of people, through workshops and education.

Being our district has aligned itself with a few outside organizations that will provide expertise in the field, it is the perfect time to be forging ahead with this idea and creating resources that teachers might find valuable and lessons can be demonstrated. Creating short games to help facilitate the practicing of value-based decision-making would be beneficial. A game such as, “guts” versus “heads”. Currently, this is just a thought but hopefully with a collaborative effort will be brought into fruition. Also, creating a kids book series that will have the reader stop and the kids can come up with the pros and cons of decisions that the character may take. This resource is also currently being developed but a few more books would help the teacher really teach the skill.

In conclusion, decision-making based on values needs to be viewed, as a way of operating and needs to turn into a habit just as voting has been our habit of the past. It will provide the platform for authentic conversations to take place and decisions to be made based on our personal or group values. This skill needs to be taught to our youth to help them lead our society in a positive direction.
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