

Future Innovators: Developing Creativity Through K-12 Arts Education in Saskatchewan Schools

A Position Paper and Recommendations in Response to
“Achieving Growth Through Innovation”
by C. Brooke Dobni

Commissioned by the Saskatchewan Arts Alliance

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Executive Summary

In 2014, C. Brooke Dobni of the University of Saskatchewan and the Edwards School of Business was commissioned by the Saskatchewan Arts Alliance (SAA) to write a paper on the role of arts education in supporting economic sustainability. In his paper, Dobni argues that creativity is one of the prerequisites for innovation, and that innovation is the means to creating new value and growth in any business, service or organization. If we accept Dobni's premise that the abilities to be creative and innovative are essential to progress and sustainability, it is a reasonable next step to examine K-12 education's role in developing these abilities. How do we instill a creative spirit and the tools to be creative in our young people before they graduate from high school and move on to the work force or post-secondary education?

Since the 1950s, creativity has been a legitimate area of academic research. It is now accepted knowledge that creativity is not a single innate talent, but is rather a collection of factors that can be developed. People known to be creative in the arts and sciences have provided a source of knowledge about these factors, which include such things as curiosity, divergent thinking, flexibility, the ability to focus, the ability to see patterns, and a willingness to take risks. The list of traits varies in the literature about creativity, but creative schools advocate Ken Robinson describes creativity succinctly as "applied imagination."

If we accept Dobni's premise that the abilities to be creative and innovative are essential to progress and sustainability, it is a reasonable next step to examine K-12 education's role in developing these abilities.

A number of movements in education are currently focusing on the pressures applied by the work force for high school graduates fluent in 21st century skills and technologies. The STEM approach integrates science, technology, engineering and mathematics into learning experiences based on practical applications. However, creativity advocates fear that STEM overlooks the essential need for creative innovators. The STEAM movement (the arts in addition to math, science and technology) aims to integrate the arts into K-12 education and influence employers to hire creative people to drive innovation.

Partnerships between teachers and artists offer a means of achieving high quality inquiry learning experiences, where the expertise of both partners impacts the educational outcomes of the projects. Country-wide experiments in the UK in the past ten years have placed increased importance on the arts in schools and artists in classrooms as resources for teachers and students in all subject areas, and results have been significantly positive.

In Saskatchewan, we have inquiry-based compulsory Kindergarten to grade 9 Arts Education and a variety of specialized curricula available to high schools. However, the current government has placed a pause on curriculum development and renewal as it reviews its priorities for education. This has especially affected high school teachers who are working with outdated curricula. Elementary school teachers have access to more recent curricula, but the reality is that elementary teachers need much more support to help students achieve arts education outcomes, and not all high schools are able to offer a range of specialized options in the arts.

In-school programs that encourage collaboration between teachers and arts professionals have proven to be effective in engaging students and providing professional development for teachers. Such programs have been established in several countries, but in Saskatchewan, ArtsSmarts and Artists in Schools residency programs (administered by the Saskatchewan Arts Board in partnership with SaskCulture and the Ministry of Education) offer a means to engaging students and teachers in curriculum-based arts programming. The benefits of these collaborative creative ventures are well-documented, and among them are the development of the collection of traits that comprise creativity. If Dobni's argument holds true that creative individuals drive development and progress, arts education curricula and artist-teacher partnerships need to be a priority in 21st century education for Saskatchewan students.

Introduction

In 2014, C. Brooke Dobni of the University of Saskatchewan and the Edwards School of Business was commissioned by the Saskatchewan Arts Alliance to write a paper on the role of arts education in supporting economic sustainability. In his paper (available from the SAA) he asserts that a commodity-oriented and service-based province like Saskatchewan needs to create differential value through innovation in order to grow its GDP.

Dobni defines innovation as the creation of new value, and states that innovation involves the

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generation of new ideas around products, services and processes, and the ability to implement them on a consistent and reliable basis. Innovation, he says, is a top strategic focus for many organizations: "There is a good deal of evidence to support both the financial returns of innovation and the non-financial outcomes" - such things as lower employee turnover, less absenteeism, higher productivity, higher levels of optimism and a better engaged collective spirit (Dobni, 2014).

Two of the key points that Dobni makes in his paper are that creativity is one of the prerequisites for innovative behaviour, and that innovation within an organization is driven by the creativity of its employees. Dobni says that creative individuals are curious, persistent, able to focus deeply and make connections, and able and willing to take risks.

So how do we achieve development of an innovative population properly equipped to support a sustainable economy? We can assume that people do not automatically become creative and innovative upon entering the work force. The question for K-12 education then is: if creativity is the precursor to innovative practice, and if innovation is necessary for growth in any area of business or service, how do we instill a creative spirit and the tools to be creative in our young people before they graduate from high school? In other words, how do we ensure that the education system equips students with the skills to be creative and innovative, and in Dobni's words to:

- generate ideas
- be curious
- concentrate
- make connections
- think divergently
- solve problems

- deal with ambiguity and complexity
- integrate multiple skill sets
- collaborate with others.

As Dobni states in his paper, these abilities align with the outcomes of contemporary, inquiry-based arts education programs. Such programs equip students with the skills to create new value with the knowledge they acquire in a multitude of subject areas in order to become the innovators of the future.

This follow-up to Dobni’s paper will explore:

- contemporary thoughts about creativity
- involvement in the arts as an effective way to develop the prerequisite skills and abilities for innovative practice
- the STEM to STEAM movement
- innovative programs in other jurisdictions that might provide ideas for Saskatchewan
- the current environment in Saskatchewan related to school policy, curriculum and programs in the arts.

It should be noted that there are many supportable reasons to advocate for the arts in schools, ranging from the development of artistic skills to the developmental of diverse cultural understanding. This paper, as a response to Dobni’s paper, focuses only on the arts as a means to developing creativity.

Creativity

There was a time when creativity was seen as talent or genius and not something you could learn if you weren’t born with it. Some researchers refer to this as “Big C” creativity. Contemporary thinking around creativity focuses more on “small c” creativity, or the premise that everyone is creative, to a greater or lesser degree. There is general acceptance now in the literature on creativity that it is not just one mysterious trait, but is rather a collection of factors.

Another common misunderstanding of creativity is that it equals originality. Joy Paul Guilford was one of the first to study creativity as a field of research and clarified the role of originality, but also investigated creativity as the generation of ideas, convergent thinking, the creation of new patterns, and the transformation of knowledge. Guilford (1950) made the point, still valid today, that originality alone without cognition does not constitute creativity. Guilford and the researchers that followed made great contributions in our understanding of creativity as a collection of traits and behaviours.

For example, Pace University researcher Baptiste Barbot thinks of creativity as: “a bit of intelligence, some associative thinking, some divergent thinking, and then some personality traits, like the tendency to take risks, your motivation, and your specific interests” (Konnikova, 2014). Creativity researcher Mark Runco stresses the importance of flexibility in the creative person. “Creativity is a syndrome or complex and flexibility is an important part of it. The flexibility of creative persons is what gives them the capacity to cope with the advances, opportunities, technologies, and changes that are a part of our current day-to-day lives” (Runco, 2004, p. 658).

A common misunderstanding of creativity is that it is simply creative problem solving. Runco (2004) states that “Creativity is not just a kind of problem solving” and explains that much creativity is proactive (p. 661). Proactive is what contemporary companies want their employees to be; think of the Toyota plant experiments that empowered employees to seek innovations and provided a model for numerous other companies.

Arts education is the only academic subject area in which the goals of developing the collection of skills that comprise creativity are front and centre in its curriculum.

Some researchers talk about knowledge or content as a necessary component of creativity. Runco (2004, p. 667-68) says that factual knowledge supplies a person with options and procedural knowledge supplies what he calls tactics. In other words, a creative act is a meaningful act. Intelligence is at play in creativity in the way the mind makes connections and chooses between options. There is an abundance of research that shows creativity cannot be taught outside of meaningful contexts. This provides an explanation for why workshops dedicated to creative problem solving (many such commercial programs exist)

cannot cover the range of complex skills that comprise creativity, and cannot replace planned developmental learning over a long period of time.

Ken Robinson, in his book *Out of Our Minds* (2011), says, “Creativity is also about working in a highly focused way on ideas and projects, crafting them into their best forms and making critical judgments along the way.... In every discipline, creativity also draws on skill, knowledge and control” (p. 5). Robinson (2011) describes creativity as applied imagination: “Being creative involves doing something.... People are not creative in the abstract; they are creative *in* something... [the meaningful context referred to above]. Creativity involves putting your imagination to work” (p. 142). Robinson’s explanation supports the notion that imagination alone, even in the arts, does not result in new ideas or innovations. Creativity is a much more active and dynamic collection of traits and skills.

The crucial points of the above discussion concerning the development of future innovators are:

- creativity is necessary for innovation
- creativity is not a single innate talent, but rather is a collection of skills and abilities
- creativity involves the application of thought, and goes beyond simply imagining
- the skills of creative thought and practice can be developed over time when taught and applied within meaningful contexts
- the appropriate means of teaching creativity is through a program of planned, developmental steps learned within various knowledge contexts important to the learner (applied imagination).

How do we achieve this?

A number of researchers discuss the importance of creative schools, creative leadership and educators who teach creatively – in other words, innovative educational reform – but a specific answer to the question can be found in an inquiry-based arts education curriculum with developmental outcomes beginning at the kindergarten level and continuing through to grade 12. Creativity is not the exclusive domain of arts education – science and technology are obviously

creative fields – but arts education is the only academic subject area in which the goals of developing the collection of skills that comprise creativity are front and centre in its curriculum.

Arts education, by its interdisciplinary nature and its natural integration of contemporary ideas and technologies, allows the student to apply imagination to any content area, and allows arts education teachers to collaborate with other teachers and professionals across disciplines. The skills and abilities of creativity and innovation are not just one component of the planned program; they are the program. Inquiry-based arts education gives focus to the creative abilities of our future innovators.

From STEM to STEAM for 21st Century Learners

STEM is an American movement in education aimed at encouraging more graduates to fill science and technology jobs. STEM integrates science, technology, engineering and mathematics into learning experiences based on practical applications. The program focuses on the students' ability to organize information, reason logically and spatially, and link isolated facts into understandings. The movement has attracted much attention in the US, and even Sesame Street now has a STEM component. The acronym STEM has made its way to Canada and its potential impact on education here is imminent.

STEAM is a movement founded by the Rhode Island School of Design in response to STEM. STEAM asserts that the arts drive innovation and are necessary to advancement in the sciences and technology. The STEAM movement does not position the arts in schools as a luxury, but rather as a *necessary pathway* to innovative thinking.

The original STEAM movement aimed to transform research policy, integrate the arts into K-12 education, and influence employers to hire artists and designers to drive innovation. The essence of STEAM, however – that the arts are essential to innovative thinking and behavior – can be applied in all K-12 schools through policy change, inquiry-based curriculum including arts education curriculum, and open dialogue among science, math, technology and arts education teachers.

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Research on the inclusion of the arts in STEM education (STEM to STEAM) is in its early stages, but there are studies that support the idea of the arts being the means to developing the creative ability that all agree is so necessary to innovation.

In 2013, *Economic Development Quarterly* published the results of a study that investigated whether arts exposure and arts practice play a role in nurturing the innovative thinking of science/technology entrepreneurs. The study concentrated on five years

(1990-95) of Michigan State University Honours graduates in science, technology, engineering or mathematics (the STEM subjects), and a comparable number of non-STEM graduates. The research questions were as follows:

- Does arts and crafts involvement have any relationship with economic development?
- Do innovators and entrepreneurs use the skills they develop through arts and crafts involvement for problem solving?
- Do STEM graduates report higher than average arts and crafts training or hobbies?

The arts areas for the purpose of the study included a wide range including music, creative writing, visual arts and dance. The study found that the STEM graduates who had founded companies or produced patents had a higher than average arts participation. An overwhelming majority reported “using ‘artistic’ styles of thinking”, which for the study were defined as the use of analogies, play, intuition and imagination. The results were significant and the researchers concluded that, “For the country to reinvent itself out of the recent economic crisis, we must attend to the role of arts and crafts as incubators and generators of innovative and creative capacity” (LaMore et al, 2013).

In terms of examples of successful collaborations between the arts and sciences, they are endless. Einstein himself said that the greatest scientists are artists as well, and he told a friend that the gift of imagination meant more to him than any talent for absorbing absolute knowledge. He added that all great achievements in science must start with intuitive knowledge, and made his now-famous statement that “Imagination is more important than knowledge” (Calaprice, 2000). In addition to being a scientist, Einstein played the violin and valued music greatly throughout his life. Another famous scientist, Carl Sagan (1979), famously said, “It is the tension between creativity and skepticism that has produced the stunning and unexpected findings of science.”

School-Arts Partnerships and Engagement

In his book *Creative Schools* Ken Robinson cites one North American study that puts the level of disengagement or boredom in high school at 63%. He says students in the study “stay with the program reluctantly but have little interest in what they’re doing and largely wait for the day to be over and for the time to come when they can graduate and get on with the rest of their lives” (Robinson, 2015, p. 23).

What Did You Do in School Today? is a multi-year research initiative of the Canadian Education Association. In 2009, after a survey of over 32,000 students in 93 schools and 10 school districts across Canada (two in Saskatchewan), the researchers reported that only 37% of students were intellectually engaged with their studies.¹ Engagement in other areas (social engagement, for example) was higher, but the researchers state that their findings were consistent with other studies that conclude students in Canadian schools are not intellectually engaged (Willms et al, 2009, p. 17). Interestingly for our purpose here, the study asks us to reimagine schools as places where all students experience success through engagement, and among the descriptions of re-imagined school activity, they include “develop imaginative and innovative habits of mind” (p 6).

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One of the most important contributions of the arts in schools, supported by study after study, is the increased engagement of students in their own learning with the consequent benefits of higher rates of attendance and better academic performance. The city of Chicago, with a multitude of problems typical of a large urban centre, provides a case in point as several studies of its schools

¹ Saskatchewan is currently involved with researcher J. D. Willms in a program called “OurSCHOOL”, which collects, analyzes and reports on factors that are known to affect student learning outcomes and students’ engagement in school. The results are not publicly available, but are used by schools to plan their own improvement initiatives.

correlate arts programming with a rise of test scores and a number of other measures of improvement (Rabkin and Redmond, 2004, p. 8).

In 2015, the country of Wales introduced an initiative based on such findings called *Creative Learning through the Arts*, essentially a program for increasing Welsh students' interactions with creative practitioners and enhancing experiences in the arts. The goals are:

- to improve attainment through creativity
- to increase and improve arts opportunities in schools
- to support teachers and arts practitioners to develop their skills in order to deliver improved outcomes for learners.

At the government announcement of the initiative, Professor Dai Smith (2015), the author of the report upon which the program is founded, added:

My report of 2013 presented Government with a key challenge – embed arts and creativity in our schools across Wales and there will be a sea-change in attendance, aspiration and importantly achievement.

In another example of a massive experiment with artist-school partnerships, the Creative Partnerships program ran in the UK between 2002 and 2011, when budget cuts brought it to an end. From 2002-2011, Creative Partnerships worked intensively with over 2,700 schools across England, 90,000 teachers and over 1 million young people to develop creativity, skills and achievement using an inquiry approach. As the name suggests, and like the new program in Wales, creative practitioners worked with students and teachers to achieve the goals. Creativity was viewed as not simply “doing the arts,” but rather as questioning, making connections, inventing and reinventing, and flexing imaginative muscles.

A 2007 interim study by Arts Council England found that students in the program were outperforming their peers in English, mathematics and science. (Arts Council England, 2007) A later review of the program concluded that students made gains in achievement in formal curriculum areas, but the most significant impact was in student engagement in school as evidenced by increased attendance and motivation (Hill, 2015).

The Creative Partnerships program shows that students involved in school programs designed to increase creativity become more engaged. Creativity and innovation require that a person have the

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ability to think, take risks, willingly work their way through frustration and come out with something new, in other words, participate in a process of engagement. When you talk to artists and scientists about their processes, you conclude that it is impossible to be creative and/or innovative without being deeply engaged.

British visual artist Chuck Close says: “Inspiration is for amateurs – the rest of us just show up and get to work. And the belief that things will grow out of the activity

itself and that you will – through work – bump into other possibilities and kick open other doors that you would never have dreamt of if you were just sitting around looking for a great ‘art idea’” (Fig, 2009).

Writer Elizabeth Gilbert of *Eat, Pray, Love* (2015) fame says:

Frustration is not an interruption of the process, frustration *is* the process.... That moment of smooth, easy grace where everything is going great — that is not the normal. That is the miracle that happens every once in a while if you’re very lucky. The frustration, the hard part, the obstacle, the insecurities, the difficulty, the ‘I don’t know what to do with this thing now,’ *that’s* the creative process.

These partnerships in which educators, students and creative professionals work together are important to teaching students the ability to engage deeply in creative work, and helping teachers understand the teachable aspects of the artists’ processes. The ability to engage deeply is one that that will serve students in walks of life beyond the arts, and one that is necessary to innovative thought and practice. And the spin-offs of engagement in the arts (higher rates of attendance and increased motivation) result in achievement in all areas of school.

Creativity in Saskatchewan Schools: Policy and Partnerships

So far, this paper has explored the development of creativity as a necessary set of skills and abilities for the province’s future innovators. The STEAM movement in the US advocates including the arts along with math, sciences and technology in the provision of education for 21st century learners. Kindergarten to grade 12 partnership programs between schools and arts professionals have been shown to increase students’ engagement in their own learning and motivate them to participate meaningfully in school.

The spin-offs of engagement in the arts (higher rates of attendance and increased motivation) result in achievement in all areas of school.

So where are we in Saskatchewan at the current time, related to curriculum policy and support programs such as creative partnerships?

According to provincial education policy², arts education (dance, drama, music and visual art) is a required subject area in all Saskatchewan schools from Kindergarten to grade 9. Inquiry based curricula are available to all teachers. Schools may

offer band and choral classes beginning in grade 5 as options in addition to provincial curricula. Creative writing is taught in elementary schools as part of the required language arts curriculum. The current curricula were written in Saskatchewan and place a heavy emphasis on Saskatchewan and First Nations art and artists. The elementary school program is aimed at providing an arts education for all students, and preparing those with unique interests in the arts for specialized programs at the high school level.

Courses in various arts areas are available for grades 10 to 12, including band, instrumental and vocal

² Information on education policy and curriculum in Saskatchewan can be found in the Registrar’s Handbook for School Administrators on the Ministry of Education website: <https://www.curriculum.gov.sk.ca/webapps/moe-curriculum-BBLEARN/index.jsp>

jazz, choral, visual art, dance and drama. Creative writing and media studies are available as electives within the language arts area of study. There are also many elective courses in the practical and applied arts such as theatre arts, interior design and graphic arts. In addition, some schools divisions have developed their own courses in, for example, garage band, pottery and First Nations cultural arts.

For the most part, the classroom teacher delivers arts education in elementary schools. Specialists deliver band and choral and most high school specialized courses, but decisions about elective course offerings and staffing are made at the school division level. Curricula are offered in both French and English, although they tend to be developed in English first and are later adapted to include specific francophone cultural references.

There is a full time arts education curriculum consultant at the Ministry of Education. A teacher is currently seconded for three years to adapt arts education curricula for French schools. These two consultants work with teams of teachers in the respective arts areas. They also develop plans to implement and support teachers, although specific implementation targets are set locally. Current arts education curricula (both required and optional) are in various stages of writing, renewal and implementation. In September of 2013, the government placed a hold on most curriculum development within the Ministry in order to review and identify provincial education priorities.

The reality remains that many Saskatchewan students are not getting an arts education that includes dance, drama, music and visual art, and many Saskatchewan teachers are not getting the support they need to fulfill their obligations... it is an ambitious undertaking to ensure that every student in the province achieves the outcomes defined in the curricula.

It is important to note that Saskatchewan has been a leader across the country in recognizing the value of arts education for all students and not just those with a unique interest in the arts, and committing to that recognition through policy and curriculum. That is not to say that all Saskatchewan students are receiving an exemplary arts education, or that the curriculum is implemented as intended in all schools. However, the work Saskatchewan has done to affect change in schools has been

recognized, especially regarding its inquiry approach and its infusion of First Nations and Métis content and perspectives. The Northwest Territories has used Saskatchewan's arts education curriculum for many years and Nunavut has recently adopted the same curriculum for its students.

Still, the reality remains that many Saskatchewan students are not getting an arts education that includes dance, drama, music and visual art, and many Saskatchewan teachers are not getting the support they need to fulfill their obligations. Most school divisions do not have a consultant dedicated to arts education, and it is an ambitious undertaking to ensure that every student in the province achieves the outcomes defined in the curricula.

The idea of creative partnerships (as adopted in Wales and the UK) offers a unique means of support to both teachers and students. In Saskatchewan, a partnership between the Saskatchewan Arts Board, SaskCulture, and the Ministry of Education has resulted in a number of programs that aim to put arts professionals in Saskatchewan schools to work in partnership with teachers on inquiry learning projects in the arts. These include ArtsSmarts, TreatySmarts, Artist in Residence, and LiveArts (an online program of "guest artist broadcasts" that can be accessed by all schools in the province through their receiving technology).

All of these programs are intended to be partnerships between artists and teachers. The artists are creativity experts and co-creators along with the students. The projects are guided by the teacher's knowledge of curriculum outcomes and assessment. ArtsSmarts has funded over 200 projects in Saskatchewan schools in the past ten years. The demand on the LiveArts program has grown dramatically in the past five years as teachers have become familiar with the technology in their schools. In addition to these programs, there are opportunities for students to work with artists through the many programs offered by the province's professional arts organizations.

The experiences that result from students' and teachers' collaborations with artists are, for the most part, deeply meaningful. Anecdotal reports from teachers attest to the impact on student engagement and learning in the arts, and the value as professional development for teachers.

Recommendations

Saskatchewan is in a good position to build the arts into any STEM initiatives in schools though planned, developmental curriculum. The policy is in place for required arts education for all students. The means is in place for creative partnerships between schools and arts professionals to support teachers and enhance students' learning in the arts and, consequently, engagement in school.

The students in school today are the 21st century learners we've talked about for so long, and it behooves us to ensure that they acquire the skills and abilities that will make them the future innovators of Saskatchewan.

Recommendations for future actions for the Saskatchewan Arts Alliance include:

- Encourage the Ministry of Education to resume its schedule of inquiry-based curriculum development in the arts, including K-9 Arts Education, and specialized and applied arts courses for high schools
- Encourage the Ministry of Education and Saskatchewan school divisions to commit to full implementation of arts education curricula in whatever means they can reasonably manage (through staffing, professional development workshops, instructional resource development, partnerships with arts professionals, etc.)
- Encourage the Ministry of Education to maintain commitment to arts education curriculum outcomes and/or indicators related to the skills and abilities commonly understood to comprise creativity
- Encourage the Ministry of Education, the Saskatchewan Arts Board, and SaskCulture to build on their current partnership in order to maintain funding for artist-school partnerships
- Encourage the Ministry of Education, the Saskatchewan Arts Board, and SaskCulture to build longitudinal research practice into their partnership programs in order to assess formally the value of artist-school partnerships, especially related to student engagement
- Find ways to work with business and industry to build knowledge about the relationship between creativity, innovation and the arts in schools.

Conclusion

C. Brooke Dobni is not by any means alone in his assertion that creativity is a necessary precursor to innovation, and that innovation is necessary to growth and sustainability. Nor is he alone in his suggestion that arts education in schools is a means of developing the collection of skills comprising creativity, including the abilities to generate ideas, concentrate, make connections, think divergently, solve problems, deal with ambiguity and complexity, integrate multiple skill sets, and collaborate with others. They are a necessary part of a contemporary education for our students, no matter what they plan to do after high school. The students in school today are the 21st century learners we've talked about for so long, and it behooves us to ensure that they acquire – through studies in science, technology, mathematics **and** the arts – the skills and abilities that will make them the future innovators of Saskatchewan.

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