The Impact of Circus Arts Instruction on Physical Literacy
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Introduction:
There is a growing community studying circus. I am excited to share some of the research we have done at the National Circus School in Montreal, where we are headed next, and what it means for how circus can intersect with physical education in Canada (http://www.nationalcircusschool.ca).

Those of us who practice and teach circus have a hypothesis: doing circus is good for you physically, mentally and emotionally. Although we saw the resilience, integrity and perseverance circus built in our students, we didn’t have any actual research backing us up until recently. As you can imagine, it is very hard to convince people that circus arts belong in schools without any studies reinforcing our claims.

What?:
But first, what is circus? Skills can be placed into five large categories of circus activity (Barlati, n.d.): Juggling an Manipulation, Aerial Acrobatics, Floor Acrobatics, Equilibristics/ Balance, and Clowning. Certain disciplines from all of these categories can be present in a youth circus program, exposing students to a wide spectrum of physical challenges. You will perhaps notice that I did not mention animal acts. Although these were an important part of traditional (think tented) circuses, they are extremely rare in contemporary circus, which has a stronger focus on aesthetic continuity and narrative.

You will also hear the terms social circus, youth circus, adaptive circus, educational circus and recreational circus used to describe how programs emphasize different types of development. Generally, social circus has a primary goal building personal resilience through the acquisition of circus while recreational circus is an activity participated in for active fun without professional aspirations. Youth circus and adaptive circus both refer to the population in the circus class, where adaptive refers to populations with specific physical needs that require modification of the pedagogy or physical goals. There are many recreational circus programs in the United States and Europe and each has a hub organization providing training and safety information (AYCO: www.americanyouthcircusorganization.org, EYCO: www.EYCO.org). Some areas of Belgium, France, Germany, and Canada have also taken the initiative to make circus part of the physical education curriculum (Ancion, 2015; Busch, Fritsche, Fauser, & Wunsch, n.d.; Carlux, n.d.; Coasne-Vitoux, 2013; Deslandes, Rivard, Joyal, & Trudeau, 2010; Kiez, 2015).

For circus researcher, coach and theorist Jacqueline Davis, all types of youth circus can be understood under the umbrella term ‘developmental circus arts,’ (DCA) (J. Davis, 2010). She describes the use of this term beautifully, so I will quote her here: She advocates the use of this term wherever circus is a vehicle for the growth and benefit of young people … Thus, broadly speaking, a developmental circus arts program (DCAP) is a micro-
ecology in which the process of acquiring circus skills and creating performances cultivates positive outcomes across multiple domains. (2010, p. 12).

**Why is doing circus good for you physically, mentally and emotionally?**

Now that we know all about what kinds of circus are being taught (the 5 families), how (developmental focus) and where (everywhere!), we can understand the populations that have been researched. The good news is that all of the studies done so far support the hypothesis that **doing circus is good for you physically, mentally and emotionally**, and that those benefits hold true across age, ability, skill level and socio-economic level.

Currently, the majority of the research on circus consists of studies, reports and qualitative data. These exploratory studies highlight gaps in the research, provide a platform for asking more in-depth research questions, and open an informative window onto what kind of impact circus training has on participants.

For instance, in Finland, a study of diverse circus programs conducted between 2011 and 2014 on the community impact of circus participation surveyed nearly 200 participants of circus activities, including youth, the elderly, those with visual and developmental impairments and those considered at-risk (Kinnunen, Lidman, Kakko, & Kekäläinen, 2013). The researchers found that important social benefits were seen across all demographics. Specifically for our purposes, they found that circus participation taught children resilience through making and recovering from mistakes, taught them how to become confident performers, and “offered [them] a meaningful and pleasant group activity” (p. 12). Similarly, a study of a Mexican social circus site run by Cirque du found that participation in circus activities fostered “personal and collective development” through “increased self-esteem, the coaches’ recognition of these young people, the mutual concern for the safety of all and acceptance of the rules (Rivard, Bourgeault, & Mercier, 2010, p. 188).

Two recent reports on community circus programs in New Zealand noted that the teacher and parents found that the students demonstrated “improved motor skills, better teamwork and increased confidence” (Trotman, 2012, 2013, p. 11, p. 17). Another study of an Australian circus program for school children found, among other things, that circus “promotes positive risk taking both physically and emotionally, in a safe and supported environment, promotes physical health and body awareness, increases self-confidence, and improves social connectedness and leadership skills within the group” (Maglio & Mckinstry, 2008, p. 289).

In a seminal case study of four Australian circus programs, Sharon McCutcheon observed that because there is more than one way to learn a skill, “circus allows young people to learn cognitive and motor skills at the same time and from the “bottom up.” This contrasts with many physical education skills which involve “hierarchical, linear … Students can very quickly become more skilled than their teachers in circus and enjoy their new found freedom in physicality and other areas of personal development” (McCutcheon, 2003, p. 108).

She also cites Tim Durick’s article “Circus in Education”, which states that circus teaches children to “learn how to learn” (Durick, 1993: 3, McCutcheon, 2003, p. 108).
is therefore not surprising that schools with circus programs often see scholastic improvement as well because, as McCutcheon notes, “All of the schools report that their circus programs are very popular with traditional “under-achievers” or young people identified as “at risk” … it is a program that these students engage in, succeed in and have their status raised within their peer groups, the school staff bodies and consequently these students want to succeed in other areas within the school. Success breeds success.”

The few studies evaluating curricular circus programs corroborate these findings. In the context of an evaluation of cross-curricular competencies, Deslandes et al. conducted focus groups with staff and parents at a small primary school in central Quebec where an Arts du Cirque program had been running for five years. Although they had a small sample size, they found significant benefits in many surprising areas. The population of the students grew over the course of the program, which the researchers attributed to the circus arts program (Deslandes et al., 2010, p. 5). All of the respondents perceived that participation in the circus program had increased self-esteem, motivation and skill development in the students (p. 9). Students were seen to exhibit clearer values and a sense of belonging, as well as including circus in their other academic courses and demonstrating better behavioural choices, which McCutcheon also found in her Australian study (11). There was also a community impact because many teachers felt that they were closer to the students and also noticed the “presence of parents in school during rehearsals and performances, … testifying to certain advances regarding the engagement of parents from low SES environments whose own experiences of schooling have often been negative or who were contacted only when their child was having problems” (p. 18).

The only quantitative study of circus arts programs was undertaken by the NCS, in collaboration with Dr. Kreillaars and looked at how circus training influence physical literacy. We compared three Quebec schools with standard Physical Education curricula to three SES matched Quebec schools that include circus in their PE courses. The research indicates statistically significant physical literacy benefits for the students in the PE circus schools. While improvements in motor competence were observed in all schools after the three-month period, the grade 5 students exposed to circus showed substantial improvement (Kiez, 2015, p. 4). When compared to the standard PE group, circus-exposed students demonstrated more eagerness to participate in physical activities, more confidence in their motor skills, and felt more talented. Also, as many of you know, the gender gap between male and female activity in this age group begins to widen rapidly. Although circus did not close the gap, the gender gap was significantly smaller at the PE circus school than at the school with standard classes. At the very least, we can say that circus participation stopped the gap from widening.

The most unique aspect of this research, aside from being the only quantitative study of youth circus participation and the only one using Physical Literacy to frame the question and results, is that the participants are not self-selected. Which is to say, studies of recreational and social circus programs are generally studying a population who has chosen circus activity, not one upon whom circus has been thrust in the context of a required course. These results are exciting because they show circus has an impact
even on a “captive” population. One indication of the results, then, is that circus is appealing to kids that would otherwise not be very engaged in exercise. If circus does promote the enjoyment of activities and confidence in movement, this could be really great news for all of our youth, and especially our girls. Indications of gender parity show up in other research as well, like Davis and Agans study of AYCO participants where they found that “circus appears to accommodate both sexes equally but differently” (J. L. Davis & Agans, 2014, p. 29)

But…. Really? Circus? :

As you can see, there is quite a lot of youth circus going on around the world, and quite a lot of it having a positive effect! So, why the resistance to including circus arts in school programs? Barriers to implementing and accomplishing a successful circus program are already evident from the research. Let’s talk about some of those barriers and potential solutions.

This is an area of great interest for us in the circus community – what prevents adoption of circus activities and, in parallel, what kind of environment exists in schools that do implement circus programs?

An excellent study conducted in Hong Kong uncovered some of these issues in a research context. The researchers surveyed PE teachers who had just undergone a two-day training workshop in circus arts in order to discover how they perceived the training experience and whether they could apply circus to their classrooms. Teachers were both excited and apprehensive about including circus, perceiving that potential barriers would be the lack of “suitable equipment” and “subject matter knowledge,” and an “inadequate… teaching venue.” Concerns about safety also came into play, but only 15% of the respondents considered them a hindrance to project implementation (Chung, 2010, p. 115). Regarding implementation environment, Chung observes that the school environment critically influences the success of new curricula, specifying that “inhibitors include… district practice and policies and educational priority, class size, workload, time constraints, lacking of support and resistance from other colleagues” (Chung, 2010, p. 112).

The concerns expressed by the PE teachers in Hong Kong echo the exact concerns we have heard from educators in Canada. The NCS has mandated CLIPP, an organization specializing in psychosocial intervention, to assess the school environments where circus is happening and the ongoing challenges they face in Quebec.

The first concern is adequate equipment. Yes, there are some very specialized tools used in circus, unicycles, trapezes and tight-wires, for instance. However, many programs find ways to incorporate existing equipment into the circus program by making use of the mats, balls, hula-hoops and climbing ropes that already exist. The school in Deslandes et al’s study went another step further, with students learning to make juggling equipment and then selling it to the school and other students, thereby benefiting their circus program, confidence, community, and learning entrepreneurship skills (Deslandes, Rivard, Joyal, & Trudeau, 2010, p. 12). Creativity like this both reduces the financial burden for the schools and increases student engagement and

Technical knowledge of the skills is another concern for PE teachers adopting circus units. The good news is that there are probably circus people in your city! You can work with them, or hire them to give workshops or teach special classes, and both increase your knowledge base while practicing new and fun skills. However, because there are important safety considerations, the best option is working with a professional performer or getting certified to teach circus. The NCS offers the only accredited certification in North America, available online for distance learners. Cirque du Monde will also offer a forthcoming instructor training program, as do a variety of circus centers in the United States for varying competences at varying levels of professionalism (National Circus School, 2015). France, by the way, has federal coach certification levels for teaching circus and for teaching adaptive circus to those with diverse special needs (L’avise, Opale, & FFEC, 2012). So, technical knowledge is accessible in a variety of formats.

Risk, although minor in Chung’s study, tends to be a major concern in North America, as evidenced by many of the talks at this conference. Let’s be honest, physical risk is strongly associated with circus arts, and for good reason. The Death-defying stunts that won performers fame in the traditional circus are still part of professional performance, though differently nuanced in the contemporary circus aesthetic. In certain disciplines, high levels of skill can come with high levels of risk; that is what makes the technique skilful. However, low and medium skill levels teach risk management, a critical skill for students. The ability to assess a situation, and where your skills measure up against the challenge, benefits the student both in physical acquisition and decision-making skills. Michael Ungar, head of the Resilience Research Center at Dalhousie University, proposes that by depriving our children of risk opportunities, we are effectively depriving them of psychosocial growth opportunities (Ungar, 2010). As Dr. Pike asked in his talk yesterday, how do we deal with concerns about safety while providing youth with an opportunity to learn risk management? We believe that circus presents an ideal scenario: students learn skills that are within their grasp, which lead them to harder skills which in turn lead to greater challenges. These skills are taught with knowledgeable coaches in safe environments that have appropriate equipment, such as mats and helmets (for unicycle). With the right resources, circus is not more dangerous to teach than other sports. In fact, studies from circus schools and professional performers show a drastically reduced injury rate when compared to equivalent sport rankings (Shrier et al., 2009; Wanke, McCormack, Koch, Wanke, & Groneberg, 2012). In response to the question of risk, we must therefore demonstrate preparations for risk management to ensure the maximum benefit to all participants.

It is also important to note that some studies have shown circus decreases certain types of risk, such as with the reduced rates of school dropout shown in Deslandes et al.’s Quebec school (Deslandes et al., 2010, p. 16).

That leaves us with the question of what conditions help implement a successful circus program, where “success” means enduring and supported by technical and emotional resources, and what kind of benefits a general population might receive.
Ground Breaking Research!

We can see that there are a few barriers to the easy introduction of circus arts into school program. Although none of the barriers are very high, planning to overcome them alone can be daunting enough that it deters an inspired individual.

By its nature, circus is creative. In this case, “creative” means solution-driven (the show must go on, as they say). Those of us working in circus see obstacles, not barriers, and obstacles can be overcome together. In the circus spirit of collaboration, therefore, the NCS is undertaking a research project that has an aim of disseminating information that will assist the implementation of new circus programs.

Our project is a SSHRC-funded three-year grant to investigate the impact of the implementation of circus programs on the Physical Literacy, resilience and creativity of grade 5 students. We are working with a team of researchers across Canada including Dean Kriellaars in Manitoba, Patrick Leroux in Montreal, Doug Klein in Alberta and Michael Ungar in Halifax to train PE teachers in circus arts instruction and support the teachers, administrators and students as they introduce circus arts into their grade 5 PE curricula for the 2016-2017 school year. Our support will be tailored to the needs of each school, including assisting with equipment purchase, lesson plans, presenting performances and community outreach. The students, PE teachers and parents will all undergo the same PLAYtools testing as in our Quebec study, with added instruments aiming to tease out emotional and social resilience, types of creativity, general demographics, and pedometer data. Focus groups with students, teachers, parents and administrators will also be part of our comprehensive research.

The structure of this study was designed to address some of the research gaps we just discussed. Because this will be the first exposure to circus arts, we will be able to see if there are differences with the comparison schools after one year of training, which will let us know which areas circus arts impact quickly. Previous studies all looked at populations who had already been training circus, changing the baseline measurement.

Further, this data can tell us a lot about specific barriers to introducing circus effectively and safely into the public school systems. Because we will be working with school administrations and teachers to discover and address financial, technical and ideological barriers, we will be better prepared to offer solutions to future programs.

Is it most effective to introduce circus as one curricular unit? Throughout the school-year? Integrated into other sports units?

Following Chung’s conclusion that the “most important” factor for success of “any educational initiative [is that] PE teachers’ voices and thought[s] about their professional learning have to be unearthed,” we will be working closely with, and listening to, the teachers implementing these new programming units. That will enable us to be better informed about what kind of support teachers want in order to feel prepared to introduce circus arts, and the kind of information that enables administrations and communities to support a circus project for a variety of levels.

Because this is a social innovation research grant, we are aiming for concrete outcomes that will benefit all Canadians. This study will give us more data about the impact of circus on children’s physical, social, emotional and cognitive development. The
information gathered about how to safely and effectively implement enduring circus programs in school will be available on a freely accessible Web-tool. The aim of this tool is to provide support for program development and implementation, from research about areas where circus has shown positive outcomes to links to resources for equipment purchase and DIY instructions, and methods of growing a circus program. When I teach circus, I like to tell my students that I can tell them what looks wrong, but not what looks right, meaning that there are unsafe actions but once an action is safe, there is a tremendous diversity to what looks ‘right.’ The same is true of circus programs and circus in PE. We hope that this tool aids schools in developing the type of integration that works best for their resources, including staff, students and community.

**Circus arts is complementary to PE curricula:**

There are many compelling reasons to include circus arts in the physical education curriculum for our youth. Introducing circus arts brings a diversity of movement challenges that are task-oriented and collaborative. Strikingly, these movements also strengthen the student’s ability to accomplish their curricular goals, as Serena will address later this afternoon. Because the students are not in competition with each other, there is no zero-sum result at the end of the course. Instead, they learn to set personal goals (admittedly often inspired by an achieving peer) and work together towards a common outcome. Creativity, risk-management, communication with peers, and increased engagement with teachers are all ‘added-value’ components of circus arts training, benefitting the student, the teacher and the community as a whole.

Because circus is a performing art, most programs find some way to present their accomplishments to others, whether it is in front of the class, or the school at an assembly, or for the public in a special show. This provides students with the valuable experience of performing *for not in front of*, an audience, and might even help with some of that good, old-fashioned public-speaking anxiety which so many people feel (Kiez, 2015). Overall, we make a strong case that **doing circus is good for you physically, mentally and emotionally.**

Circus arts can and should coexist with the many other activities available to our youth, both in school and outside. If our previous research holds up, we may see that including circus activity in PE actually *increases* youth participation in other activities, which can only be a good thing. Overall, this research will take us one step further towards the long-term physical, emotional, social and community health of the next generation.


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The Impact of Circus Arts Instruction on Physical Literacy

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Circus is Good For You?

• Physically?
• Mentally?
• Emotionally?
5 Circus Families

JUGGLING AND MANIPULATION
Flower sticks, clubs, balls, diabolo

AERIALS
Trapeze, wire, rope climbing

ACROBATICS
Trampoline, hand-to-hand, tumbling

EQUILIBRISTICS (BALANCE)
Rola bola, stilts, unicycle

THEATRE AND CLOWNING
Audience, performance,

Circus in various settings

Social circus

Adaptive and Therapeutic


A Developmental Circus Arts Program is believed to impart benefits in these areas

**Social-Emotional Development**
- joy
- trust
- pride
- inclusion
- respect
- diversity
- life skills
- self-esteem
- collective efficacy
- empowerment
- responsibility
- self-confidence
- social connection
- civic engagement
- self-determination

**Cognitive Development**
- academic improvement
- EF: problem-solving
- creative thinking
- communication
- EF: self-control
- collaboration
- cooperation
- goal-setting
- leadership
- EF: attention
- mental health
- school attendance
- self-directed learning

**Physical Development**
- physical fitness
- health
- physical self-efficacy
- self-image
- stamina
- coordination
- balance
- core strength
- flexibility
- motor fitness
- eye-hand coordination
- manual dexterity
- non-verbal expression
- appropriate risk
- non-competitive

© 2011 Jacqueline Davis, Ed.M.
Presented at the 2011 AYCO Festival Circademic Workshop
Tampere: Listed in order of most “Agree”

It’s fun to be able to move around in the circus. We get to have a good time together in the circus. I have learned new skills in circus.
Circus brings me joy.
It’s okay to make mistakes in circus.
Circus is exciting.
Circus has motivated me to move more.
I am given attention in circus.
I have had the confidence to try scary things.
My family thinks circus is a fun thing.
I have learned to listen to the instructor.
I have learned to concentrate in circus.
I have become braver in circus.
My friends have told me I’m good at circus tricks.
I am an important part of the circus group.
I have found a new friend in circus.

Beaver Circus Camp in Massachusets, USA


The respondents perceived that participation in the circus program had increased self-esteem, motivation and skill development in the students.

Students were seen to exhibit clearer values and a sense of belonging, as well as including circus in their other academic courses and demonstrating better behavioural choices.

Motor Competence (Change over time)

18. Lift and lower
17. Drop to ground & back up
16. Balance walk (toe-to-heel) backward
15. Balance walk (heel-to-toe) forward
14. Foot dribble moving forward
13. Kick ball
12. Hand dribble stationary then moving forward
11. One-handed catch
10. Strike with stick
9. Overhand throw
8. Jump
7. Hop
6. Gallop
5. Skip
4. Crossovers
3. Run, jump, then land on two feet
2. Run there and back
1. Run a square

Motor Competence Improvement (mm/100)

Sex Based Differences in Motor Competence (Circus reduces gender gap)

Circus is Good For You!

- Physically
- Mentally
- Emotionally
Perceived barriers to implementing circus programs

1) Suitable equipment
2) Subject matter knowledge
3) Teaching venue
4) Safety


Circus and Physical literacy

We do...

- Swing
- Run
- Fall
- Climb
- Land
- Jump
- Throw
- Catch
- Balance
“The problem with families and schools limiting exposure to risk and responsibility is that it prevents access to growth opportunities.”

- Michael Ungar


What’s neat about circus....

circus practice is on a continuum...

Technique is explicit  Art is conceptual
Exercise physiology  narrative
Biomechanics  intent
Motor learning  perceptions

What’s neat about circus....

so is circus THINKING!

Barriers are explicit → Solutions are creative
Resources
Safety
Connection

making and discovering equipment
learning risk management
building collaborations
Circus and Physical Literacy: Research Assets

- Teacher training at ENC
- Collaboration with school administration
- Multi-disciplinary research team
Project Objectives

- Disseminate results via online web-tool
- Develop Pedagogical methods for PE courses
- Break down barriers to circus education
- Encourage resilient and active youth
Circus in Schools will support students:

- Physically!
- Mentally!
- Emotionally!
IF you want to join the fun....and run away with the circus...

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References


AYCO: www.americanyouthcircusorganization.org

EYCO: www.EYCO.org

National Circus School: www.ecolenationaledecirque