

Forests and Fur: The Power of Non-Formal
Education in the International Learning Framework

Morgan A Belveal

University of Pennsylvania

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Introduction

To achieve academic parity in the international learning framework, the international education community must include non-formal education in its interventions. Non-formal education mediations, such as the two discussed in this review, provide cheap, scalable, and ground up solutions to the current problems facing education systems in low and middle income countries (LMICs). There are three elements to be considered in improving international education. The first is quality of education. Quality in education is on a spectrum. One end is static and quantifiable and the other end is contextual and fluid. It is the fluid end of quality that promotes success in the diversity that exists in education. The second element is contextually relevant education. The international education community will fail if it attempts a “one-size-fits-all” approach to solving the problems facing education in LMICs. Finally, the third element is access to education. Once a system of quality and contextually relevant education is provided, only then does access to education matter. Non-formal education solutions, such as Forest Schools and Sesame Workshop, consistently provide access to high quality and contextually relevant education that supports environmental sustainability and sustainable development.

Forest Schools

Forest School Theory

With play as a catalyst for development at the center of its mission, Forest Schools around the world focus on supporting confident, self-motivated and environmentally conscious learners. Forest schools operate on the basis of play as development. They focus on programming rooted in research that demonstrates that loose parts in nature provide stronger

tools for development and more learning affordances than constructed loose parts. Forest schools prioritize the development of the naturalist intelligence in children. This intelligence not only supports the holistic development of children, but also ensures children feel motivated to protect the environment. This dual engagement in the education of children through project based learning and focus on protecting the environment for future generations makes the argument for Forest Schools as an integral part of the international education framework.

Forest Schools operate on the basis that children have a unique and intimate relationship with their learning environments. With the Leuven Involvement Scale, children rated their involvement in nature much higher than their learning involvement in a traditional classroom where they lack engaged energy and imagination. When children experience natural environments they experience developmental benefits such as increased wonder and imagination, improved creativity, enhanced personal and social skills, stronger self-efficacy, improved understanding of self and intrinsic engagement in their classrooms (Knight 2013). Further, engagement in nature for education promotes concentration, observational skills, analytical capacity, problem solving, and critical thinking skills (Knight 2013). Crucially, Forest Schools around the world operate from the belief that outdoor learning supports a much stronger understanding and concern for the environment. Forest Schools set the target on achieving the Sitting Tenant's Perception (a relationship between child and environment that demonstrates a strong sense of belonging and love for their place). In a review of case studies around the world, Knight (2013) demonstrates the affordability, relevance, scalability, and effectiveness of Forest Schools in supporting child development through natural engagement.

Forest Schools in Practice

United Kingdom The modern understanding of Forest Schools blossomed in the UK after the publishing of a 2007 UNICEF report that stated UK children had poor self-esteem. The schools initially targeted preschoolers and adolescence to tap into the immense potential afforded to preschoolers by the plastic nature of their brain. While Forest Schools today exist in many sizes and designs, they originally were designed to act as an academic supplement focused on destressing children. This destressing through play provides a release of built up academic interference and allows further learning throughout the day. Beyond destressing in support of cognitive development, natural play allows children the opportunity to explore and learn strictly from an intrinsically motivated mindset.

In addition to research demonstrating the power of nature to support cognitive development, Forest Schools provide more opportunities for engaged learning. In a study in Wales, children were divided into three classes each with measured learning opportunities four times per year. Using audio/video technology, the researchers compared the time children spent engaged in conversation about learning in a traditional classroom with time spent on the same conversations in forests. They found that child initiated conversations were more likely to be environment focused when they were in nature. A natural environment provides more learning affordances between a child and their environment. This study also found enhanced sustained shared thinking which supports children cognitively, socially, and developmentally through one on one conversations with peers or adults. This supports the idea that children's ideal learning environment is one that supports simultaneously doing, thinking, feeling and being (Knight 2013). This exceptional constellation of requirements thrives in Forest Schools and is spreading across the world to support children in a wide variety of contexts.

Germany In response to a gloomy status quo of primary schools in Germany, the Zentrum für Bildung (ZFB) (Center for Early Education) is dedicated to bringing wood-pedagogy to preschools around Germany. ZFB values Forest Schools because they create a space for children to explore an unfamiliar environment with non-formal exploratory learning and semiformal experiential learning. ZFB has a thematic focus on the educational power of rivers. Flowing water is intriguing to children in preschool and has the capacity to teach manipulation, conservation, tool use, and scientific inquiry to children. The goal of ZFB is to introduce the mysterious, stimulating, and contemplative nature of the woods to contrast the rigorous set of academic expectations in preschool and early childhood education in Germany (Knight 2013).

Sweden The history of Sweden's relationship with forest education is significantly different from that of forest education in Germany. The Swedish preschool system has roots in sustainable development. From the very beginning, Swedish preschools were designed to use exploration, play and gardening to foster a love of living things. Today, the majority of Swedish preschools believe in using all five senses and outdoor play to support the development of children. This deep and rich connection to nature ensures that children spend 2-3 hours on the playground every day and visit the forest at least once a week. In the case of Tallkotten's Preschool, the school grounds are composed mostly of forest. From an early age, the students are exposed to nature. The youngest children nap outside in strollers year round. Granen's Preschool is close to a large city in Sweden, but the children still visit the forest every Wednesday. Uniquely, a different child leads the learning adventures each week and the teachers actively integrate traditional curriculum into natural exploration. In the case of Sweden, prolonged and regular forest play drastically reduces the gendered nature of play.

Slovenia While its history with play is not as long as that of Sweden, Slovenia has a scalable and extraordinarily unique model of the forest school. The education system uses standalone environmental classrooms called Learning Polygons for primary and secondary education. The development of these polygons was a direct response to ESD's call to take response for society and the environment while learning skills. With experiential learning, children are solving problems and in the forest they are much more conscious about solving the problem in an environmentally friendly way. While developing a care for nature, students in the learning polygons learn to transfer theory into practice and improve their cognitive and emotional competence (Knight 2013).

These learning polygons are unprecedented and are providing a powerful solution to play deprived and environmentally unconscious children in Slovenia. The learning polygons use the environment as an example to learn traditional subjects in a non-traditional way. This model engages all senses and promotes comprehensive and sustainable education. Educators integrate biology, chemistry, geography, social science and technology education from a problem based approach. The education system in Slovenia creates learning polygons that focus on (1) natural ecosystems where students measure pond temperature, identify species, measure soil moisture, water chemical analysis all while being surrounded by unique learning opportunities, (2) Ecoremediation where students are tasked with the problem of waste water and erosive surfaces, and (3) self-sufficiency where students learn innovative food production strategies to address Slovenia's food crisis. Students take their knowledge and relate their solutions to their local environments and they will be able to identify and execute solutions to local environmental problems (Knight 2013).

Australian Bush Kinder Australia is motivated to include Forest Schools in their national landscape as a remediation to reported declines in health, well-being and development linked to urbanization. Their solution is to support the belonging, being and becoming of children with socio-cultural and natural environments called Bush Kinder. The Australian Bush Kinder believes natural play supports identity through manipulate environment, improves self-efficacy in changing the word, improves well-being (mental and physical), Requires and cultivates confidence, and supports communication with peers. This program engages Aboriginal participation. The aboriginal people of Australia believe in a Concept of Country which identifies the land as “a place that gives and receives life” (Knight 2013 p.135). The contextual affordability of Forest Schools allows cultural integration such as the utilization of traditional face painting and storytelling to promote learning. Australian Bush Kinder uses hunting and gathering, medicine, and spear throwing to teach history, culture, geography, science, and to support sensorimotor development. In the unique case of Australia, the environment provides specific opportunities for discussion about risk management. Children learn are taught to identify dangers (such as venomous predators) and how to respond to them (Knight 2013).

Affordable Scalability

Both Brazil and South Africa are working to challenge the traditionally utilitarian nature of our relationship with the natural world. Brazil was the first nation to make environment education compulsory. This was a step to shift the belief towards a care for nature and away from the usefulness of nature. In the case of South Africa, children and families are connecting to nature with the delivery of Veggie Bags. These bags allow intergenerational family members to grow crops that support learning, improve nutrition and enhance children’s understanding of the

world. The contrast of this case study to that of the Slovenian learning polygons demonstrates the adaptability and scalability of nature education.

Student Perceptions of Forest Schools

Without mass acceptance among children, Forest Schools cannot succeed. To test the appeal of education through nature, interview studies were conducted in India. In 1960, India's Nai talim nature filled education framework was replaced with the current project based textbook curriculum. When asked about their perceptions of their learning environments, the majority of children reporting extrinsic motivations for school such as parent satisfaction. In response to questions about their preferred learning environment, children significantly favored outdoor learning spaces. When children were asked what they enjoy about the current curriculum-focused education framework, they can provide examples. However, when they are afforded the opportunity to remove traditional expectations of the learning environment, they drastically prefer non-traditional and outdoor learning environments. Beyond the students, the parents also preferred their children to learn in an outdoor setting (Knight 2013). This localized survey represents the beliefs of parents, children, and human development experts around the world. When children are developing, the natural world provides an engaging and stimulating method of promoting healthy development and cultivating a generation that is aware of environmental problems and is empowered to make a difference.

Conclusion

Forest schools around the world provide a unique support for both academic development and environmental sustainability. While the mission of forest schools remains the same, the contextually adapted interventions support intrinsically motivated learning among children of all ages. By supporting cognitive development through play and exploration and by cultivating a

healthy relationship between children and their environments, forest schools have the potential to be a powerful segment of the international framework for sustainable education.

The Sesame Effect

With a focus on holistic child development and a knowledge of the way a child's environment influences their development, Sesame Workshop set out to ensure all children in the world become smarter, stronger, and kinder. The world is becoming more and more connected to each other and to media. At the same time, disadvantaged children in LMICs are finding it difficult to compete with the world. Sesame uses a ground up approach and a team of local experts to produce multimedia interventions that address specifically identified problems in local education. In some cases, (Turkey and Bangladesh) exposure to a Sesame production has equated to one year of formal education (Cole & Lee 2016). What started as a simple experiment to test the educational capabilities of the new medium of television now holds immense educational power in low and middle income countries around the world.

The Theory Behind Sesame

Sesame Workshop believes in using a mixed media approach to support the holistic development of young children around the world. Their theory of change is derived from Bronfenbrenner's bioecological theory of development which means they design interventions for the child, parents, families, educators and schools all with the intent of helping children become smarter, stronger, and kinder. The Sesame model uses a multidisciplinary team of production, education, and research specialists to produce contextually relevant and educational programming (Cole & Lee 2016).

When an intervention is contextually implemented on every continent, the outputs for measurement become difficult to identify. This is why Sesame pays extra attention to

measurability of each of its co-productions. Every production begins with a needs-assessment referred to as formative research. This research allows the production to be innovative and flexible as well as allowing the production to be centered on contextual educational needs. Each co-production is evaluated independently of the other productions by a team of local evaluation experts. In the event that there are no local evaluation experts, Sesame trains a local team before production. The sesame model includes the use of mixed methods research. Quantitative methods are used to measure academic knowledge acquisition and qualitative methods are used to measure behavior changes (Cole & Lee 2016).

The World of Sesame

When Sesame Workshop begins working on a new co-production, the needs, values, and beliefs of the community remain at the center of the process. In the very beginning, Sesame brings together a team of local specialists to select an education framework. This framework is flexible and based off of the current needs of the targeted children. Crucial to the Sesame model is the extra attention given to avoid imperialism. The New York based organization only produces co-productions when they are invited and their model is accepted. In many cases, the creation of local content takes time. In response, the production team will start with dubbed materials from American productions and transition into utilizing strictly locally produced segments (Cole & Lee 2016).

After selecting the local education framework, the production team begins adapting the Sesame model to meet the needs of the brand new co-production. They first identify the context of the production and make relevant production changes. For example, they will make a decision regarding production language. While the audience of every production will be learning how to count, the items they count will change contextually. Second, the co-production pays attention to

the pedagogy required to teach the skills included in the education framework. Third, the production will shift the priority and emphasis given to different educational domains. This priority is continually reevaluated and shifted when necessary (Cole & Lee 2016).

The most obvious shifts from one co-production to the next are the physical changes of the production. To further their intentional avoidance of imperialism, Sesame Workshop strives not to include American Muppets or settings in international co-productions. Bert and Ernie are the two exceptions to this rule as the majority of their scenes take place in a relatively location-neutral set. In addition to locally designed Muppets and sets, the content of each production is contextually designed to represent the children watching the co-production (Cole & Lee 2016).

The Four Domains of Sesame

Cognitive Development At the center of every co-production is the support of academic achievement and cognitive development. The priority of cognitive development among other thematic areas of learning shifts from one co-production to the next. In the case of most co-productions in Asia, Cognitive Development takes center stage. Across Asia, Sesame works at the unique intersection of low early childhood education access and an increase in media utility to support cognitive development (Cole & Lee 2016).

It didn't take the local team of experts long to determine literacy would be the thematic focus of Jalan Sesama, Indonesia's local co-production. At the same time children were increasingly failing early childhood education (Especially in low-income and rural households) there was an increase in household TV viewing among children. This was the perfect circumstance for a Sesame Workshop co-production. The show, which is filled with subconscious messages in support of learning, was designed to motivate children to learn. It was a unique partnership with the Ministry of Education that allowed Jalan Sesama to expand their

reach with learning spaces, curriculum, and teacher training. They did find that medium/high exposure to *Jalan Sesame* improved literacy test scores. Furthermore, the production cultivated self-efficacy among students and encouraged teachers to ask for more creative freedom in their instruction (Cole & Lee 2016).

In the case of Sisimpur, Sesame Workshop's co-production in Bangladesh, Sesame convened 17 local experts who identified academic preparedness as the curriculum theme of the education framework. They noticed that only 27% of children were enrolled in school and the local team of experts saw the potential of using sensory learning in preschool aged children to cultivate a love for learning. Uniquely, to combat the lack of access to television, Sisimpur innovated a series of themed rickshaws to broadcast the production in local centers. Beyond the production of multimedia learning materials, Sisimpur partnered with local organizations to deliver teaching and learning materials to classrooms to improve the quality and consistency of formal education. Sisimpur continues to make positive impacts on the development of children in Bangladesh. Educational Independent of critical characteristics (wealth, parent education, gender) – the more Sisimpur a child watched the more advantaged they became in comparison to their peers that didn't watch. Studies also found that the more disadvantaged a child was, the more they benefited from the materials (Cole & Lee 2016).

The education system in China is regularly regarded as supreme. However, after formative research the production team acknowledged a lack of 21st century skill development among primary school aged children. China co-produced two productions (*Big Bird in China* and *One World, One Sky*) that focused on improving 21st skills through intercultural engagement. After exposure, Chinese children who watched earned higher scores in the three domains:

science and discovery, nature and the environment, and health and the human body (Cole & Lee 2016).

Health Education Sesame Workshop acknowledges that poor health reduces the likelihood that a child will be successful in their pursuit of education. To remediate this barrier, many Sesame co-productions place health education at the center of their education framework. With its theory of change, Sesame works with local teams of experts to develop productions that focus on reducing the impact of some of the world's worst diseases such as HIV/AIDS and Malaria (Cole & Lee 2016).

The impact of HIV/AIDS on sub Saharan Africa is a significant barrier to children's education. In response, Sesame Workshop was invited to co-produce Takalanis – an HIV/AIDS focused solution in South Africa. The local team of experts saw the opportunity to make an impact on the spread of the disease by increasing the quality and quantity of conversations about the HIV/AIDS. Takalanis introduced Kami – one of Sesame Workshop's most controversial Muppets. Kami is an HIV positive monster with human characteristics. Her design means that she is not representative of one culture but instead represents the humanity of the disease. In research of children and caregivers, external researchers found significant increases in knowledge of HIV/AIDS, knowledge about blood safety, attitudes related to destigmatization, and skills related to coping with illness. The same study also measured increases in parent and educator willingness to have conversations about HIV and AIDS with their children. Sesame Workshop has employed similar global health strategies to combat the spread of Malaria (Cole & Lee 2016).

Some health crises are not bound by the borders of a country or region. Instead, they universally impact low and middle income countries. Sesame recognized that lack sanitation was

one such phenomena. For the first time, Sesame introduced an international Muppet called Raya. Raya's primary goal is to travel to co-productions around the world and promote the Cleaner, Healthier, and Happier multinational initiative (Cole & Lee 2016).

Gender Equality While progress is being made, there is still a lack of equality in education around the world. Sesame's approach always includes boys in the discussion about gender equality. With the use of indirect messaging, such as girls and boys collaborating in scenes, Sesame is able to promote gender equality with each of its co-productions. Alam SimSim and Shara'a SimSim are two co-productions with an intentional focus on promoting gender equality in education. When the interdisciplinary team came together to create the curriculum for Alam SimSim they identified five objectives that would lead to gender equity: Equal rights, self-esteem, Emotional expression, professional attainment, and civic and community responsibilities. As a solution, they Created a new Muppet called Khokha to break gender based stereotypes. They continue to Give extra attention to her interactions with other characters (especially males) to ensure they are broadcasting a message of gender equality. In the case of Shara'a SimSim in Palestine, girls are taught discipline throughout their childhood. At the same time boys are taught to value instant gratification. This has led to a culture that disadvantages boys in pursuit of schooling. In response, Shara'a SimSim uses direct and indirect lessons to teach Boys are also taught to be kind and compassionate (Cole & Lee 2016).

Inclusion against conflict Sesame Workshop's programs that teach inclusion as a tool against conflict focused on showing the commonality in children from oppositions. The most fundamental example of this model is the relationship between Rechov SumSum, Israel's co-production, and Shara'a SimSim, Palestine's co-production. Operating with the recent Oslo accords and the knowledge that both Israelis and Palestinians wanted to teach tolerance to their

children, Sesame Workshop set out to pursue the dream of creator Joan Ganz Cooney. Teams fought through extreme personal, national, and historical difficulty to produce the shows. While it was preferred to produce one show in the beginning, the climate was not ready for a joint Israeli and Palestinian co-production. Sesame calmed disbelief in likeness by creating to separately produced shows. The education framework focuses on mutual respect, the child's world, literacy, and cognitive organization. In preliminary post exposure research, both Israeli and Palestinian parents understood and supported the mission of the two shows. Beyond the empirical evidence that showed various levels of improved acceptance of the "other" among children, the co-productions provide many stories of behind the scenes collaboration between Israeli and Palestinian production teams working together to meet deadlines. This conflict model was replicated in Kosovo between Serbian and Albanian populations and in Northern Ireland between Catholics and Protestants (Cole & Lee 2016).

As they did with health and cleanliness, Sesame broke traditional barriers and created a child centered global citizens' initiative called Panwapa. Panwapa is a virtual community that lives on a floating island to teach children about acceptance and inclusion. Produced in 5 languages (Arabic, English, Japanese, Mandarin, and Spanish), Panwapa uses a multimedia approach to expose children to conversations between people who are different from each other. In as few as 11 months, the program had demonstrated success with more than 500,000 children from over 180 countries (Cole & Lee 2016).

Challenges to the Sesame Model

With a contextual educational organization as wide spread as Sesame Workshop is, there will be challenges to the delivery. On more than one occasion, there has been a conflict between contextual values and the values of Sesame Workshop. This conflict occurs when considering

whether an action is considered safe or healthy. It is traditional that Sesame prefers the local values if conflict presents itself. However, in the case of safety and health, Sesame prioritizes the organization's values. Beyond values-based conflicts, Sesame Workshop consistently has to overcome Evaluative hurdles. It is difficult to evaluate drastically different programs in different contexts each with short production windows. Further, their reliance on qualitative research has a tendency to give the finds less power in a field dominated by Randomized Control Trials. In addition, the popularity of the shows often makes it hard to identify a control group. The delivery method of Sesame Workshop is innovative an unprecedented which means it consistently has to find solutions to new problems.

Conclusion

The Sesame model understands that children do not develop in isolation. Instead, Sesame supports the development of children's learning environments as while as supporting the direct development of the child. With a fun, furry, and flexible approach to whole child education, Sesame Workshop is actively promoting the development smarter, stronger, and kinder children who are intrinsically motivated to learn together.

Conclusion

Education has the potential to change the divisive trajectory of the world. With education, we can preserve the natural world, unite conflicting peoples, and cultivate empowered learners. While rigorous and traditional academic classrooms provide a vehicle for children to learn, they lack an authentic connection to knowledge attainment and the child's environment. Non-formal learning opportunities are rooted in intrinsically motivated learning. Further, Forest Schools and Sesame Workshop are two examples of solutions that are affordable, scalable, and effective at supporting the development of children of all ages. Formal education alone is not enough to

change the trajectory of the world; nor is informal education. Instead, the international education framework must move forward with a carefully developed formula that equally values the natural learning of non-formal education and the curriculum focused nature of formal education. With this equation, the world will finally have access to high quality and contextually relevant education that supports the sustainability of learning and the environment.

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