

Inquiry: An Emancipatory Pedagogical Strategy for Bermuda Schools

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Abstract

This article introduces the inquiry model adopted for Bermuda government preschools and early primary schools, which, because of its emancipatory critical pedagogy, uses abductive reasoning. This model is particularly well suited to government schools, given Bermuda's historical inequities and cultural differences. Abductive reasoning allows for revision with new information, and leads to a broader view of knowledge, innovation, and creativity. It also mimics the way young children learn. Critical emancipatory pedagogy is designed to raise learners' critical consciousness. The article argues that this form of reasoning and critical consciousness is required for Bermuda's children to take their rightful place on the global stage as protagonists rather than as passive recipients. The success of this inquiry model is contingent upon leadership disruption framed within a critical emancipatory pedagogy.

KEY WORDS: *Inquiry, emancipatory, critical pedagogy, abductive, deductive, inductive, leadership, disruption theory, logic of discovery, practical reasoning*

Background

In September 2015, the Bermuda ministry of education officially launched an inquiry framework – a pedagogical framework that will shape how the designated curriculum is delivered in public schools. Traditionally, teaching in Bermuda's schools has focused on didactic methods. In the classroom, the characteristics of teaching and learning are teacher-centred, such as teacher-modelling procedures and techniques, identifying desired learning, and undertaking activities that manage behaviours. The student is to follow what the teacher lays out as a plan, observe, copy, and be directed.

Didactic learning methods focus on the baseline knowledge students possess and seeks to improve upon this by conveying information. It also refers to the foundation in a lesson plan, whose overall goal is knowledge. According to the Galileo Educational Network (2015), "Inquiry is a dynamic process of being open to wonder and of coming to know and understand the world." The introduction in Bermuda of an inquiry model that utilises abductive reasoning because of its critical emancipatory pedagogy calls for a shift from teacher-centred instruction to a collaborative student-centred construction of knowledge. The model acknowledges that a child comes to learning not as an empty vessel but as an active learner, having already acquired informal knowledge and engaged in research processes. It recognises the learner in the process of learning and attends to the learner's questions and process of learning.

Given the race history of Bermuda and the cultural expectations that persist primarily for Black children attending public schools (Christopher 2009), this image of the young Black child as having capacity is an important and fundamental shift, because it will determine the teachers' pedagogical decisions and actions (Malaguzzi 1993). Bermuda's education system is still in transition from 20th century practices. With the 1997 education reform that

brought about structural changes in schooling – with two senior schools and five middle schools – and curricular shifts, the education politics of race, class, and gender were altered, as were modes of interaction such that the role of the teacher as dispenser of knowledge and the student as empty vessel were transformed. The thought processes of students demanded that teachers reposition themselves from the front and centre of the classroom into an interactive circle of learning with students.

The authors contend that Bermuda's children have a natural propensity for inquiry and research. They are open to new experiences and ideas, take in an abundance of information through their senses, and actively construct understanding with their peers by making meaning and creating relationships with ideas and concepts. They are capable of asking questions that matter and carrying on investigations that lead to satisfactory theories. Success in delivering the inquiry framework as an emancipatory pedagogy will lead to a transformative educational experience that creates a shift in teacher leadership and delivery and a shift in how students think, reason, question, and act.

Abductive Reasoning

The emancipatory nature of abductive reasoning is its openness to the future and its capacity to imagine something new. When the goal in education is to create and innovate rather than replicate, abductive reasoning makes sense. Instead of preserving a single truth, abduction is best thought of as evincing multiple truths: single perspectives are not false, they are inadequate (Patokopi 2009). Abductive reasoning stands in contrast to the more familiar deductive and inductive reasoning. Deduction starts with a theory and infers a result, which is certain; induction starts with evidence and produces a rule, which is valid until a contrary instance is found; and abduction starts with a hypothesis based on evidence and produces a case that is always merely plausible (i.e., uncertain) (Patokopi 2009; Stathis 2011).

For Malaguzzi, abductive reasoning is similar to the way young children operate in the world, developing and acting upon their own hypotheses, which are provisional (cited in Hoyuelos and Pisano 2013). Abduction is the search for a general rule from which a specific case would follow. Through the lens of abductive reasoning, learning is a complex and an incomplete process, cannot be fully understood, and is never complete (Patokopi 2009).

Leadership Disruption Theory

A widely accepted definition of leadership is that it is the activity of influencing people to strive willingly for group objectives (Rost 1993). The application of inquiry and the shift from didactic to critical emancipatory pedagogy engenders new leadership activities and delivery strategies in the teaching and learning process. It is the leader who initiates changes in established structures, procedures, or goals. This leadership is one of abduction, in that it is open to new ways of teacher and student thinking and doing. The leadership action disrupts the existing state of affairs wherein the teacher is the bearer of knowledge, the student an empty vessel. Castle (2012) asserts:

Disruption theory is a focused look at the psycho-emotional actions and reactions to seemingly chaotic or revolutionary acts. They create enough of a disturbance ... enough of a distraction, to permit a pinhole opening for robotic thinkers, ritualists, zombified management, and ardent conventionalists to be receptive to the sound which immediately follows the metaphorical explosion.

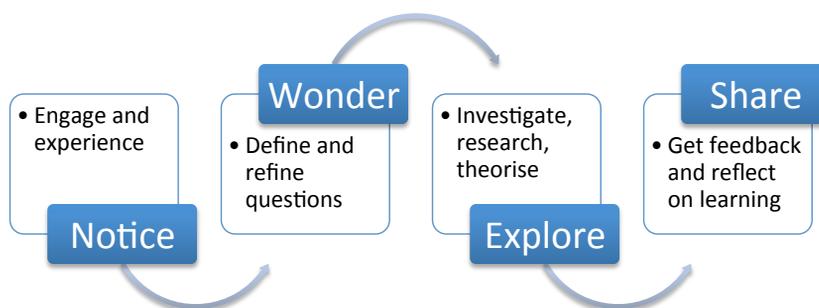
This disruption evokes change in the form of an emancipatory pedagogy for Bermuda's early childhood education that will engage children through abductive reasoning that is innovative and critical. For critical thinking and doing to become reality in the classroom, teachers and students need a teaching and learning inquiry framework.

Inquiry Framework

The inquiry framework sets out a vision and dispositional outcomes, an inquiry model, and implementation strategies. The vision of the inquiry model is that Bermuda’s children will ask questions that matter – they will explore, investigate, inquire, develop theories, engage in collaborative conversations, and build collective understandings. Skilled teachers will facilitate learning by designing rich and authentic opportunities that will build on children’s informal knowledge and provoke high-level thinking. Bermuda’s local landscape, cultures, and traditions will be the subject of their studies. The goal in promoting inquiry for teaching and learning in the preschool and early primary levels is that we want Bermuda’s children to be self-directed learners, confident people, concerned citizens, and active contributors in the 21st century.

The inquiry model (Figure 1) includes four recursive phases (noticing, wondering, exploring, and sharing). In the first phase, children engage in interesting and novel experiences that prompt them to take notice and wonder. In the wondering phase, teachers work with children to define and refine their questions and decide on which questions are worth pursuing. In the exploring phase, small groups engage in investigations and hypothesise and theorise based on their findings. In the sharing phase, children discuss what they have learned and pose new questions.

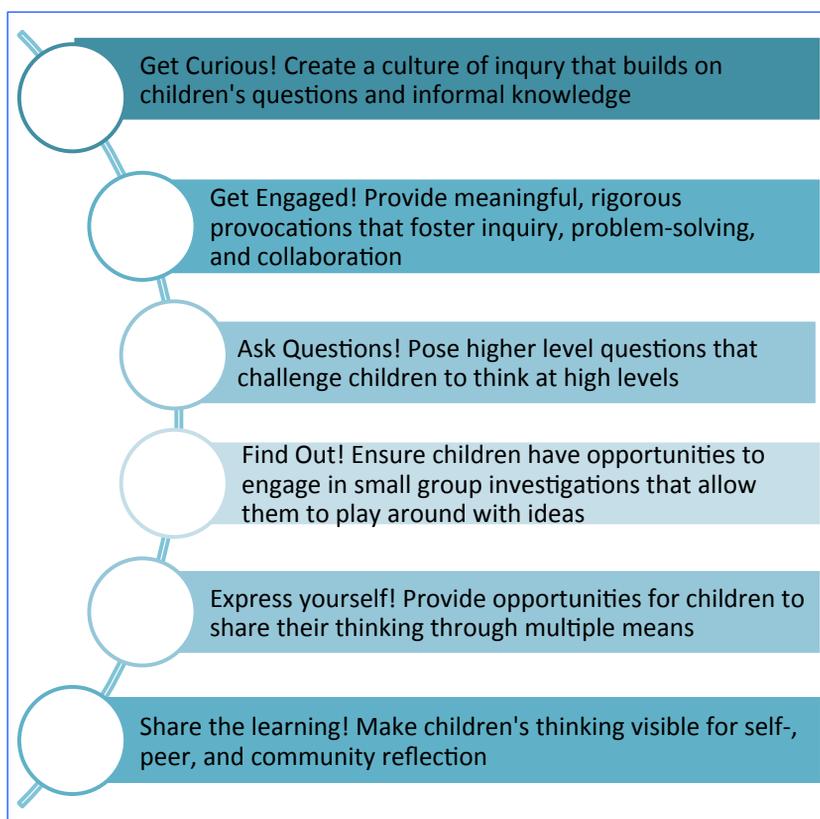
Figure 1: Inquiry Model



Source: *Inquiring Minds: Inquiry Framework for Early Childhood Education* (2015) Department of Education, Government of Bermuda

Within the framework, six teaching strategies (Figure 2) have been defined to support implementation. The first is creating a culture of inquiry whereby teachers build on children’s questions and informal knowledge by modelling an inquiry stance and creating supportive classroom structures. These structures include establishing protocols for listening and participating, and providing space, resources, and materials for children to do the work of inquiry, while ensuring sufficient time to investigate topics. The second strategy involves designing problems and provocations based on the curriculum that will engage children in real and authentic problems and tasks. The third strategy focuses on developing the questions that support thinking at high levels. This includes engaging children in brainstorming and refining questions, as well as asking high-level questions that advance children’s thinking. The fourth strategy refers to developing a plan for investigation, which includes direct observation, collecting data, designing experiments, building prototypes, and talking to experts, as well as having children put their ideas and theories down on paper. The fifth strategy outlines methods for children to talk through their ideas in mini-conferences and expressing their thinking in various ways, including dance, art, music, and drama. The sixth strategy involves documenting the learning by means of photos and texts, and collecting artefacts in order to display the learning for feedback, reflection, and assessment.

Figure 2: Inquiry implementation strategies



Source: Inquiring Minds: Inquiry Framework for Early Childhood Education (2015) Department of Education, Government of Bermuda

Early evidence from this initiative confirms the capacity of four-year-olds in government preschools to ask complex questions that link to curriculum content, questions that are more typically associated with older students at more advanced levels.

- Does magnetic force pass through water? (physics)
- Do caterpillars get wet in the rain? (biology)
- How many is two tens (holding two hands up with fingers spread)? (mathematics)

These questions demonstrate that young Bermudan children think about complex ideas at very young ages. They are constructing hypotheses and theories based on information they gain through their experiences and apply intellectual standards to assess thinking. In other words, through their questions they seek clarity, accuracy, precision, relevance, depth, breadth, logic, significance, and fairness (Paul and Binker 2012).

Case Discussion

Any educational theory that is critical and emancipatory must generate a discourse that moves beyond the established language of administration and conformity (Giroux 1988). A democratic approach is inclusive, one that listens and responds. Inquiry takes many forms, including formal studies initiated by adults or in response to informal

incidents, such as when a child discovers that light reflects off the sequins on her dress-up clothes. As she swings her arms in front of the window, the light reflects on the wall and moves as she moves. The question of what conditions come into play to create this phenomenon is intriguing. An element of surprise often sparks further exploration and actions to replicate the experience under controlled conditions.

Children are naturally curious about the ‘hows’ and ‘whys’ of the world. “Babies and children are like little scientists. They gather evidence by observing and experiencing the world” (cited in Kushnir 2007). Recently we observed a group of four-year-olds watch ice cubes melt on to paper towels. When asked what was happening, one child commented that the paper towel was making the ice cold. Thus, he has a theory about the relationship between ice cube and towel. The tendency in typical didactic classroom settings is to correct this apparent misconception. In an inquiry-based classroom, where the image of the child as inquirer is fostered, the teacher is more interested in exploring the child’s thinking. What has the child observed? What relationship has he noticed? What do others think? In this case, the child has observed that the towel is cold and that the ice is melting. He thinks there is a relationship between the two. He hypothesises that the towel is making the ice cold. According to Kushnir (2007), children form theories but revise their beliefs should they get good evidence that contradicts their earlier assumptions.

In a classroom where inquiry is the pedagogical framework, the teacher does not claim to have the ultimate truth. Certainly she brings her own knowledge and experience, but she remains open to exploring the multiple perspectives brought by children and assists them in working towards a plausible theory. She might, for instance, ask children working in small groups to explore melting on different surfaces and their effect on the ice. We can imagine several scenarios: holding the cube in their hands or placing it on tinfoil or in water. The teacher facilitates the exploration by asking open-ended questions and providing resources, materials, and opportunities to test the ideas. She will likely provide the children with the vocabulary necessary to express the concepts they are exploring and will provide them with the means to record what they think is going on. Moreover, she may invite experts in the field to work with the children or to discuss with them what they have learned to date. We expect, given the adaptive and provisional nature of children’s thinking, that when small groups of children engage in investigations, their theories will evolve and they will revise their thinking as they adapt to new information and further their understanding.

Notwithstanding the depth of understanding that is possible among preschool children in a study of the change of state of ice and transference of energy, our goal would not be that they understand the molecular structure of ice and water, the energy involved in freezing and melting, nor the transfer of heat. However, they will recognise that something is going on and engage in shared inquiries about it. Young children often surprise us with what they understand when they have the opportunity to work concretely with abstract concepts. Most importantly, they gain a sense of confidence in themselves as learners and their capacity as researchers. Furthermore, children can explore real-life applications relevant to Bermuda, such as weather patterns and systems, energy conservation, and global warming.

Conclusion

Through inquiry, we create a culture of lifelong learning and the skills to advance our understanding today and into the future. Is it too far-fetched to imagine a towel that could keep ice cold? When we do not accept the ‘truth’ of the day as absolute, we are open to new discoveries, new theories, and the advancement of knowledge. Much has changed in the theories of heat energy and heat exchanges. Much will change over the lives of the children entering preschool. Our goal is that they be thinkers that contribute to new knowledge.

In creating a culture of inquiry where questions matter, children can voice their thinking, adults and children listen to each other, mistakes are learning opportunities, and reflection is essential to planning. This requires that teachers and school leaders have an inquiring mindset.

In the words of Elder and Paul (2005): “An open mind, a spirit of curiosity, and the use of questions rather than certainty can significantly help us be more equipped for this new world and all of its complexities.” When leaders ask critical questions for which they have no answers; when they truly engage staff in the process of inquiry and are open to the multiple perspectives brought forward by staff and students, they model the inquiry approach.

One preschool administrator commented as we discussed inquiry examples: “The children are teaching us about inquiry?” This stance bespeaks what we call a beginner’s mind – an openness to new possibilities. This shift will lead us to new ways of thinking about teaching and learning in Bermuda’s government schools. Such an approach involves a way of thinking about, negotiating, and transforming teaching relationships in the classroom, the production of knowledge, school institutional structures, and the social and material relations of the wider community, society and nation state (McLaren 2000b and 1993; Keesing-Styles 2003). In short, it is an approach requiring invention and innovation!

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