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Ziba Vaghri, Katherine Covell, Holly Clow

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Wiring the brain for exercise of participation rights through active listening and active learning.

Ziba Vaghri¹, Katherine Covell², and Holly Clow³

1. Ziba Vaghri, Ph.D., is an Assistant Professor in the School of Public Health and Social Policy at the University of Victoria, Victoria, Canada
2. Katherine Covell, Ph.D., is Professor Emerita at the Cape Breton University, Nova Scotia, Canada
3. Holly Clow, MA., is a Senior Policy Analyst at the British Columbia Ministry of Health, , Victoria, Canada

Corresponding Author:

Dr. Ziba Vaghri
University of Victoria
Faculty of Human and Social Development
HSD-B202d- School of Public Health and Social Policy
Email: zibav@uvic.ca
Ph: 1-250-472-4900
Website: www.globalchildnetwork.com
Twitter: [globalchild_can](https://twitter.com/globalchild_can)

Abstract

Opportunities for participation are generally conceived to be provided through structures in the child's environment. Here we make the case that a prerequisite to meaningful participation is providing children with an early environments conducive to creating the capacity to participate within the child. Early environments have a profound impact on children's brain development and as such on their motivation and capacity to exercise their participation rights. We believe that insufficient attention has been paid to preparing children neurologically for meaningful participation in matters that affect them. After summarizing brain development in early childhood, we make the case that active listening which acts as sensory stimulation for the developing brain, and active learning, which builds confidence, self-esteem, and problem-solving skills, play key roles in promoting children's cognitive and motivational capacity for meaningful participation. Participation ultimately is meant to promote self-determination through the capacity to make effective decisions about self and others. Active listening and active learning increase the likelihood that this aim will be achieved.

Keywords: Child rights, active listening, active learning, child participation, brain development, play

Background

The impact of the environment on children's capacity to enjoy their rights is especially profound in the early years of rapid brain development. This may be particularly true for participation rights. Participation in all matters that affect the child, as described in General Comment No. 12, is one of the core principles of the Convention on the Rights of the Child (Committee on the Rights of the Child, 2009). It is noteworthy that the principle of participation had not been expressed in any previous international document on children's rights (Covell and Howe, 2001). Perhaps because of this, the principle remains, in the words of Gerison Lansdown "one of the most debated and examined aspects of the Convention on the Rights of the Child since it was adopted by the UN General Assembly in 1989" (2010, p. 11). And not surprisingly, recent research suggests the extent to which participation rights are provided is an indicator of a state's overall commitment to implementing children's rights (Covell, 2017). To date, the focus of research and discussion has been the provision of opportunities for participation in children's physical and social environments. Here, we assert that attention needs also to be paid to children's neurological milieus, since brain structure and functioning are core components of children's ability and motivation for participation.

Children's capacity to participate in matters that affect them develops as a function of their early environmental experiences. Both genetic and environmental experiences influence the development of the brain (Brito & Noble, 2014). Early experiences affect brain structure and functioning in ways that can promote or hinder meaningful participation through their impact on the development of the cognitive and social skills that underlie participation. Parents and guardians can do much to build the child's capacity for meaningful participation. Two such behaviours are the focus of this paper. Our purpose is to make the case that active listening, which acts as sensory stimulation for the developing brain, and active learning, which builds confidence, self-esteem, and problem-solving skills, are important promoters of children's capacity for meaningful participation. After first reviewing factors that affect the developing brain, we discuss the nature and influence on brain development of active listening and active learning.

The Developing Brain

The importance of children's exposure to safe, nurturing, and stimulating environments is well documented in the developmental and neuroscience literature. Brain development is a function of an interaction between genes and experiences. The brain's initial circuitry is determined at birth; however, early experiences impact how the brain is wired (Irwin, Siddiqi,

& Hertzman, 2007). In essence, the foundation for all learning, health, and behaviour is established during the early years. Depending on the quality of these early experiences a strong or a frail foundation may be manifest.

Although the brain is a dynamic and adaptable organ, there are critical periods for developing various skills and knowledge (McCain & Mustard, 1999); brain plasticity decreases later in life (Center on the Developing Child, 2007). The degree of brain plasticity is related to two main elements: the stage of development and the region or system of the brain. Once an area of the brain is organized, it is much less responsive to the environment and is less malleable. The second critical element of this vital process is related to the differential plasticity of various brain systems. Human brains develop “from the bottom up” and similar to the brain architecture, skills and abilities are built in a bottom up fashion too, with simple skills providing the skeleton for more advanced skills over time.

Sensory stimulation during the early years activates certain genes and as a result, the neural functions are differentiated in different parts of the brain and sensory pathways are built accordingly. These pathways in turn influence the development of neural pathways to other parts of the brain involved in different functions such as coping, movement, language, and cognition, some biological pathways such as the immune hormone systems, and key executive functions regarding response to social and emotional stimuli. Simply put “skill begets skill” and if the simple skills that act as a skeleton for the development of the higher ones are not developed, the development of the higher and more complex skills will be impeded (Center on the Developing Child, 2007).

Biological embedding, a concept emphasized by the late Clyde Hertzman (2012), describes a process through which the experiences of the early years modify health, and developmental outcomes, learning, social skills, and behaviour. Hertzman argued that experience, metaphorically, “gets under the skin” (p. 17163) and modifies biological and developmental processes. He maintained that differences in social environments and experiences of children, particularly during the early years, impact their bio-developmental outcomes. In addition, Hertzman asserted “... early life provides a roughly ordered sequence of developmental windows of opportunity that, in turn, allow both mundane and extraordinary experiences to get under the skin at strategic time points to alter specific biological functions, which, in turn, have the capacity to alter life course trajectories” (p. 17163). Therefore, creating the right conditions for early childhood development is likely to

be more effective and less time and resource consuming than addressing problems at a later age.

The powerful role of stimulation on the developing brain is particularly apparent in evidence that illuminates how unfavourable environments and environments with inadequate stimulation negatively impact brain development. When young children experience stressful experiences such as neglect, abuse, or exposure to domestic violence, the developing brain responds in ways that compromises their capacity for emotion regulation, memory, and learning; such experiences also increase the probability of a brain wired for physical health challenges and mental health disorders (Covell and Howe, 2009). In contrast, the developing brain exposed to positive experiences such as active listening and active learning is one whose functional and structural components are well wired to establish the neural underpinnings of self-esteem, confidence and meaningful participation.

Active Listening

Active listening, a concept originally introduced by psychologist Carl Rogers, “involves giving free and undivided attention” to whoever is speaking (Robertson, 2005, p.1053). The goal of active listening is to attend entirely to the child—to fully hear and accurately interpret verbal and nonverbal communications. It is a challenging task, particularly with very young children. Generally speaking, active listening requires a set of internal criteria, beginning with shutting down or minimizing any ongoing inner dialogue. For example, a parent must disregard any extraneous tasks that engaged him or her prior to the commencement of communication and offer full and undivided attention to the child. The parent must maintain eye contact and send non-verbal messages or gestures that show the child s/he has the parent's full attention (Robertson, 2005).

When the child is verbal, listening entails more than just paying attention to what is being communicated. Active listening involves two social cognitive processes that take place simultaneously: the listener's perception of non-verbal behaviours that co-occur with the words being spoken, *how* things are said, and the interpretation that the listener makes of the speaker's state of mind, *why* things are said (Spunt, 2013). Research suggests that the human brain responds to the sound of voices independently of linguistic content (Latinus & Belin, 2011). Research in neuroscience also reveals that understanding how something is said (e.g., the tone of voice, the use of gestures) requires bottom-up processes, that is, it only needs interpreting the cues perceived by the listener. On the other hand, making sense as to why

something is said requires top-down processes, that is, it requires that the listener know something about the context in which the speaker is talking. What is particularly interesting is that understanding how and why someone is saying something is essential to understanding what is being said (Spunt, 2013).

This observation is particularly important when young children are involved in the conversation. As a society so heavily reliant on language to communicate, we tend to assume that communication between individuals with limited language skills might not be possible. Interactions with children whose receptive and expressive language is not fully developed tend to be limited. By doing so, they often tend to be excluded from conversations on matters that are important to them.

While the developmental limitations of young children to understand language are real, our efforts to include them in conversations should be re-directed to be less language based. For example, even young children can understand how something is said by responding to non-verbal cues such as the tone of voice or facial expression (Hyde, Flom, & Porter, 2016). Regardless of what is being said and the reason behind saying it, young children can perceive a message as being positive or negative by interpreting the tone of voice, the body language, and the facial expression that accompany the spoken words. In fact, young children need the accompanying non-verbal signals validating the verbal information, such as eye contact or facial expression to not only interpret the verbal messages, but also to develop and expand the capacity to match diverse information against previous templates of multi-sensorial input (Child Trauma Academy, 2017).

More importantly, neuroscientists have identified the existence of regions in the brain that are activated by observing specific behaviours the same way as if the person was acting the behaviour themselves. These regions have been called mirror neuron systems (Di Pellegrino, Fadiga, Fogassi, Gallese & Rizzolatti, 1992) and their presence at a very young age suggests that children may be able to learn active listening skills by observing adults long before they can understand the meaning of spoken words. Of course, it is imperative that the adult listener demonstrate both undivided attention and an accepting demeanour.

Lundy (2007) outlines a helpful model that incorporates active listening as a critical component of effective child participation. The model involves four key elements. First, children must be provided with the 'space' in which to express their views and perspectives. This space must be safe, assuring, inclusive, and non-discriminatory. Second, children must be able to 'voice' their views freely. Adults must facilitate this ability by informing children

about the issues, decisions, and consequences that affect them. Third, the adult 'audience' must actively listen to children as described above. This will often require openness on the part of adults to accommodate a variety of forms of expression. Fourth and last, children's views should have some measure of 'influence' depending on the maturity and age of the child. Children should also be part of a feedback loop in which the degree of influence they have had is communicated.

The benefits of active listening during early childhood cannot be overstated. First, active listening prepares the child for meaningful participation in several ways. It does so fundamentally by strengthening neural connections and regulating levels of the stress hormone cortisol (Covell and Howe, 2009). A neural foundation is laid for learning, emotional well-being, and social competence. Each one of these elements contribute to the child's confidence, and cognitive and expressive capacity for participation. Second, active listening helps build positive adult-child relationships through facilitating the development of secure attachment during the early years of life. Early comparative research suggests a neural underpinning of attachment quality that affects the capacity to manage stress and to form social bonds. Poor caregiving, including the absence of active listening, has been associated with biochemical changes whose effects are seen in social and relational difficulties from early childhood onward (Covell and Howe, 2009). Accordingly, meaningful participation by the child becomes less likely. In addition, children who do not experience active listening in early childhood are likely to grow with no expectation of being heard and, as a result, be unlikely to be motivated for self-expression. Consequently, again, meaningful participation by the child becomes less likely.

Feeling heard also positively impacts self-esteem. Having ideas heard and valued has been shown to increase confidence and creativity (Llopis, 2013). The more confident one feels, the more ideas are expressed, and a self-fueling cycle is created. The value of initiating such a cycle in young children during their formative years cannot be overemphasized. Conversely, children who have had no or limited meaningful interactions with adults who listen to them often experience the most difficulty when expressing their ideas and are the least likely to feel they can express themselves (Clark, 2008).

Active Learning

Active learning describes knowledge acquisition that is self-initiated and self-directed. In early childhood, learning and play are closely intertwined. Play is the primary means of

learning, and free-play is the primary means of self-directed learning. Starting at around six months of age, children learn best through exploration and free play (Sim & Xu, 2017). Free play with peers through early childhood promotes cognitive and socioemotional development through its influence on the developing brain in ways that prepare the child well for participation. Play affords opportunities for the child to learn about participation because it allows children to practice agency, self-regulation, negotiation with others, social skills, and empathic responding (Samuelsson & Carlsson, 2008).

When young children are engaged in self-directed or free play, they make many discoveries about themselves, their peers, and the world around them. Each discovery, each new experience, strengthens existing neural networks and promotes the growth of new connections (Rushton, Juola-Rushton, & Larkin, 2010). In turn, this brain growth contributes to the child's developing cognitive and socioemotional skills. These skills include literacy, numeracy, and language (Sim & Xu, 2017). As described by Melinda Moyer, for example, when children play with marbles, ramps, and levers, they are learning about physics, and when they play with blocks, they are learning about geometry. But as Moyer also notes, it is not just academic skills that are learned through play. Free play with peers improves socioemotional skills (Arculus, 2015; Moyer, 2017). Listening, turn-taking, negotiating rules for games, and role-taking – common aspects of free play with peers – teach self-regulation, problem-solving, and conflict resolution. And because of the action of the mirror neurons, there is significant observational learning in play which helps explain the growth of empathetic behaviours (Rushton, Juola-Rushton & Larkin, 2010). The positive behaviours associated with free play tend to be self-reinforcing. The child increasingly feels confident to participate in discussion and activities and to express ideas as well as to listen to the thoughts of others. Although there has been some empirical study of the relationship between play and participation, there is evidence that play at the kindergarten level is a significant predictor of participation in activities during early adolescence (Astuto & Ruck, 2017). We have, perhaps, learned more from the research on the effects of insufficient play in early childhood.

When children are raised with little opportunity for play, they are at-risk of developmental vulnerability. Children classified as developmentally vulnerable show delays in one or more of the following areas of development: physical health, social competence, emotional maturity, language acquisition, cognitive functioning, and communication skills. This does not auger well for participation. Some developmental vulnerability is associated with poverty or compromised health status at birth, but not all. Studies in British Columbia

are illustrative. According to the Human Early Learning Partnership ([HELP], 2013), 30 percent of children in British Columbia meet the criteria for the developmental vulnerability on one or more scales of the Early Development Instrument (EDI). Since no more than five percent of children have a condition that compromises their healthy development, most vulnerability is avoidable. In fact, most developmental vulnerability can be eliminated through appropriate early environments and experiences (HELP, 2013). This was clear in a recent study in one region of B.C, in which a full one-third of the children in the study did not meet the basic benchmarks of social and behavioural development at the beginning of kindergarten. The Early Childhood Development Committee (ECDC) of this region attributed this to overprotective parenting and a lack of free play. These children had never experienced disappointment, conflicts, or problem-solving. They lacked confidence, and they lacked independence. In response, the Committee campaigned "Bring Back Play" to reduce the incidence of developmental vulnerability (Tamminga, 2015). It is unlikely that such findings are limited to one province in Canada.

Depriving children of free play essentially means depriving them of learning how to solve problems, control their lives, and develop and pursue their skills and interests for healthy brain development (Gray, 2011). Such deprivation not only makes it very difficult for the growing child to believe he or she has agency over his/her life but also is strongly associated with depression and anxiety. It is noteworthy that while parental allowance of free play has been lessening over the past 50 years, rates of anxiety and depression in childhood and through to early adulthood have been increasing (Gray, 2011; Lee, Tamminen, Clark, Slater, Spence, & Holt, 2015).

It may be that overprotective parenting, and a lack of free play, is due to elevated safety concerns that preclude its allowance. For example, Watchman & Spencer-Cavaliere (2017) found that parents tend to give priority to organized sports over free play. This prioritizing is perhaps most clearly explained in a study examining the determinants of free play (Lee et al., 2015). As the researchers note, there has been a significant decrease in free play over the past few decades. Concurrently, there has been a growth in new concepts of good parenting. In addition to raising a child with superior accomplishments, being a good parent has come to be associated with the constant monitoring and controlling of the child. If the child is to play, it is under the supervision of the parent in a parent-selected play date. Lee and colleagues (2015) found that the parents' overwhelming safety concerns are the primary obstacle to the allowance of free play. Such concerns are misplaced given the general decline in crimes

against children across industrialized countries; and are often generated by the sensationalistic media coverage of rare cases of abduction. The result is children who grow with a lack of skills that enable meaningful participation in their lives. It is a blatant violation of children's rights as Article 31 of the Convention declares the play, leisure, and cultural activities as a fundamental right for every child particularly the young child (Committee on the Rights of the Child, 2004).

Active Listening and Active Learning as Prerequisites for the Fulfillment of Rights

There has been increasing attention given to the link between the fulfillment of children's rights and child well-being (Kennan, Keenaghan, O'Connor, Kinlen & McCord, 2011; Bradshaw, Hoelscher & Richardson, 2007). As Lundy (2014) stated, the discourse of child advocates, researchers, and policy-makers increasingly has included the pairing of children's rights with children's well-being. And as Lloyd and Emerson (2017) described, there have been a number of studies examining children's exercise of participation rights and subjective well-being. Nonetheless, despite growing evidence of the importance of early neurological development, insufficient attention has been paid to the neurological or environmental prerequisites for the development of children's capacity to exercise their rights. Rights not exercised are rights not fulfilled.

It is important to recall that the Convention requires participation to be in accord with the child's evolving capacity. As we have shown here, that capacity starts very early with healthy brain and psychosocial development – the basic prerequisite of children's capacity to exercise their participation rights. It is important also to note that as one of the core principles of the Convention, the right to participate not only is a right in itself but also is to be considered in the interpretation and implementation of all other rights (Committee on the Rights of the Child, 2009). Thus the early years, because they lay the foundation for children's developing competencies and realization of their rights, are critical. Young children raised in an environment absent of active listening and active learning are at risk of developmental vulnerability that compromises their participation. Even if, in the later years of childhood, there are environmental affordances for participation, if children are ill-prepared neurologically – affectively and cognitively – it is unlikely that they will be as able to exercise their right to participation, and by corollary, their other Convention rights.

The importance of the early years has not escaped the attention of the UN Committee on the Rights of the Child (the Committee). Recognizing the duties of states parties and parents, the Committee has called for the allocation of resources and programs to provide parents with programs and supports to promote optimum development of children (Committee on the Rights of the Child, 2004). In particular it has called for parenting education (including training in the importance of rights), and for early childhood care and education. And as the Committee has also noted, states generally have failed to do so (Committee on the Rights of the Child, 2005). The Committee also has stressed the vulnerability of young children to conditions of rearing that undermine their healthy development and violate their rights; young children have particular needs that enable the enjoyment of their rights. We assert that key among these needs are the two we discussed here: active listening and active learning.

In summary, in agreement with the Committee, we affirm that insufficient attention has been paid to the exercise of rights in the critical early years of childhood when the brain is undergoing rapid development. We also believe that insufficient attention has been paid to preparing children neurologically for meaningful participation in matters that affect them. The ultimate aim of participation is to promote self-determination in later adolescence and adulthood through the capacity to make effective decisions about self, others, and the environment, and to promote democratic and global citizenship. Without the experiences of active listening and active learning, the child may be unprepared for either. environment, and to promote democratic and global citizenship. Without the experiences of active listening and active learning, the child may be unprepared for either.

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