

Development in the Three Planes of Space

— Jane Swain

AUTHOR'S NOTE: *I wish to give credit to Jaimen McMillan, founder and director of Spacial Dynamics, for the inspiration for this article. The following ideas and examples have developed out of many years of my study of and use of Spacial Dynamics in my work with children. (Spacial Dynamics is a registered trademark of the Spacial Dynamics Institute.)*

I was in an airport recently and was struck by how intensely the adults walked in straight lines. They were here, and they had to get to there, and heaven help anyone who was in their way! In contrast was a little two year old, *wandering around*. Something in the environment would attract him, and he would *be drawn* towards it. In this process of noticing, being interested, and following, he would veer off in a curve towards the new object. The adults moved like water spraying out of a fire hose. The toddler moved like water flowing in a stream. It was as if he caught a current, rode it as it whooshed over a rock, hovered in an eddy and then repeated the sequence again. It wasn't so much that he moved, but more that he *was moved* by something of interest to him.

My colleague Susan Weber, after hearing this story commented that the toddler's movements are mirrored in his thinking, as depicted by the stories for this age. These stories are nonlinear, wandering around stories, with no real *story line*. A wonderful example is Wilma Ellersiek's finger game "Flip and Flop," where "they dance and sing in a joyous round-a-ring." I will not comment on the quality of the thinking of the adults in relation to their movement but leave that to the reader to contemplate.

The child's mother was allowing his meanderings in the airport. If she would have needed to hurry up and get to their gate, she might have tried to *straighten him out* by taking his hand and directing him in a linear fashion. It is often easier for all concerned in a situation like this to simply carry the child, as young children are developmentally not linear. A memory from my childhood illustrates this point. I grew up in Iowa, where every so often a child would get lost in a cornfield, and rescuers would be called to find him. I remember my mother telling me that if I ever got lost

in Grandpa's cornfield to follow the row out. I actually remember thinking that that would be a good idea, but it wasn't obvious to me initially.

There was another mother in the airport with two boys, approximately eight and nine years old, who were playing tag. I overheard the mother say to them, "What is the matter with you? Can't you see that no one else is playing tag here?"

The teenagers in the airport were able to walk in lines fairly well.

Here are representatives from each of the first three seven-year periods of life, each with a different approach to the adult behavior of walking in a straight line. Libby Haddock, an experienced early childhood teacher, once remarked that child development is the best-kept secret in the western world. I agree, and perhaps an even better kept secret is the growing child's spatial development.

Last year I heard 85-year-old Alheidis von Bothmer recount a story about her father-in-law, Fritz von Bothmer (who developed Bothmer Gymnastics). Bothmer was the first movement teacher in the first Waldorf School in Stuttgart, Germany. One day, Bothmer was teaching and a boy was disruptive in the class. This was a middle-school-aged boy, and it was not the first time this had happened. Bothmer got a long beam and attached each end to the balcony, across the expanse of the gymnasium. Please note that the beam was quite high in the air. Bothmer had the boy walk across the beam. Just at that moment, Rudolf Steiner walked in, as he was prone to do in the early days of the school. At this point, Bothmer had second thoughts and wondered if this was too severe; but the boy made it safely across. Steiner told Bothmer afterwards, that this experience saved the boy from becoming a criminal!

Why did Bothmer choose this particular activity? Why didn't he have the boy walk on stilts, for example? Bothmer acted out of a spiritual understanding of the human being's developmental journey in the three planes of space. Negotiating a balance beam is a sagittal (right/left) plane activity, which met the boy at his stage of development. The forces that the boy had to generate in order to successfully walk the beam were very important for him at that point in his biography. He had gotten *sidetracked* and had to get *back on track*. He had to *pull himself together* and *walk the straight and narrow*. This experience on the beam influenced the course of his life.

Each of the three planes possesses particular forces, which influence and sculpt the growing individual; and there is an archetype to the child's progression through the three planes. During the first seven years of life, the child is primarily concerned with the horizontal (up/down) plane of space, during the second seven year period with the frontal (front/back) plane, and during the third seven-year period with the sagittal (right/left) plane.

The Horizontal Plane

Of course the child is always living in all three planes. But from birth to seven, the child's emphasis is to explore and gain mastery in the horizontal plane, in which abide the mighty forces of gravity and levity.

As Jaimen McMillan teaches, when the infant pushes down against the floor, his body is displaced upwards. This activity of pushing down into the supporting surface and then rising up against gravity happens over and over throughout each stage of the developmental motor sequence. It is largely unrecognized how pervasive and how important this gesture is during the first three years especially, and also during the first seven years. The infant pushes down in back lying, side lying, tummy lying, belly crawling, rolling, sitting, hands-and-knees crawling, squatting, standing, climbing, and walking. The child also pushes down while transitioning into and out of each position, for example from squat to stand or from prone (tummy lying) to prone on elbows.

Over countless repetitions of pushing down, the child learns, at an unconscious level, the answer to a fundamental question of this period: *where is down?* Knowing *where down is* is crucial in order to manage one's body weight in the gravitational field with a feeling of ease. It is also the foundation for proper orientation in space. If one knows where down is, then up, right, left, front and back are also revealed, and this is

very important for later academics. In *Reflexes, Learning and Behavior: A Window Into the Child's Mind*, Sally Goddard reports that "When astronauts are put into a gravity free environment, they start to write from right to left, to reverse numbers and letters and to produce 'mirror-writing'" (p. 19). This makes sense, because without gravity, the astronauts have lost their inner knowing of where *down* is, and so the other directions also are confused.

In a typically developing child, if the child is allowed to *self-initiate* his motor exploration, he will push down into the supporting surface. It makes a difference whether the child *is taught* or *teaches himself* to move. For example, if he is put into a position that he cannot yet achieve on his own, such as when we prop a child up into a sitting position, he will tense *up*, and strain to hold himself *up*. This is an entirely different movement gesture than pushing down in order to come to sitting through one's own efforts. Though propping to sit is a common practice, it actually is working against the child's spatial development.

The infant and young child are fascinated with up and down. They never tire of dropping their toys while playing on their bellies, dropping food off their high chair trays, building up towers of blocks and knocking them down, walking on inclines, dropping objects off decks, climbing up onto rocks and sofas and jumping down off of them. They love to climb up and slide down slides, drop gravel on slides and watch it fall down, swing on swings, and play on teeter-totters. I was consulting at a childcare center once where several three-year-olds were repeatedly jumping off a small table in the room, and the teacher was repeatedly telling them to stop this. Later I explained that this is what children are supposed to be doing at this age and that it would benefit all concerned if she could make a safe place where it was allowed for them to jump down.

It is the work of the adults to help guide the young child *gently down* to earth. For example, a pogo stick is an experience of up and down. It is too difficult for the young child and more appropriate around fourth grade. Trampolines are also experiences of up and down. These aren't recommended for young children, as they involve quick, jolting changes of direction, often resulting in the child becoming *unglued* and *out of himself*. At this age the space surrounding the child's physical body is not yet securely attached enough to withstand such an abrupt, intense movement.

Nursery rhymes are largely concerned with up and down. It seems that the characters all fall down. This is incarnation—coming *down* to earth. Consider Jack

and Jill, Rock-a-bye Baby, Hickory Dickory Dock, London Bridge, the Noble Duke of York, Humpty Dumpty, and the man in the moon who comes tumbling down. A favorite of mine is “Goosey goosey gander, whither dost thou wander, upstairs and downstairs and in my lady’s chamber. Once I met an old man who wouldn’t say his prayers (i.e. who wouldn’t get down on his knees to pray). I took him by the left leg and threw him down the stairs.”

Young children naturally come with a preponderance of levity. They are light on their feet. They don’t really walk around the room; they lilt, jump, and gallop instead. However, slowly and steadily children come ever downward in their space, until at fifth grade they are quite balanced between up and down. Running involves a balance between up and down, and fifth grade is the year when the students run around the block every morning during main lesson in preparation for the Olympic pentathlon. With puberty the spatial plummet begins; their gaits become heavy, their pants droop, and their postures slump. Here is when they need a lift, and the trampoline is an appropriate activity for the teenager.

Little children with their abundance of levity often make adults smile. Imagine if we didn’t have babies and toddlers on the earth to bring levity and lightness to us grown ups! However, young children are not yet able to modulate their level of levity. They are prone to becoming too *geared up*, *charged up*, *wound up*, and *keyed up*. Then they *blow up*, until they have a full-blown *melt down*. The adult is left to *pick up* the pieces.

If the adult is attentive to the spatial state of the child, she can see the eruption coming, and nip it in the bud by helping the child *calm down* and *settle down*. It is possible for adults to hone these skills, to learn to read the spatial configuration of the child and to offer spatial support to the child in order to help her learn to spatially modulate herself. Whether we are aware of it or not, children follow our spatial gestures in each of the planes of space (and in other spatial ways too). If we have consciousness and facility with our own space, we have more ability to serve as models worthy of imitation. Here is where I find the Spatial Dynamics exercises invaluable for the adult.

Our language gives us strong indications that the horizontal plane is the plane of emotions. We can be *uptight* or we can *get down*, be *on top of the world* or *down in the dumps*, and experience the *heights of jubilation* or the *depths of despair*. There is an old saying, “Don’t let ‘em get your goat.” Goats are grounded, sure-footed. They rarely fall; however, a horse is prone

to fall and break a leg. Horses are high-spirited; they can prance. It’s hard to imagine a goat prancing. In the old days at horse racetracks, it was the practice to keep a goat in the stall of the horse before the race in order to keep the horse calm. Sometimes an opponent would steal the goat, with the result that the horse would get too nervous and lose the race. Hence the saying, “Don’t let ‘em get your goat.” We are the goats for the children.

The Frontal Plane

If we consider the second seven-year period, when the child is primarily exploring the frontal plane, it’s noteworthy that this plane is called the frontal plane, and not the “backal” plane. As a society we have an imbalance in the frontal plane. We are a *no child left behind* society, a *get ahead* society. If one is ahead of oneself in the frontal plane, one is hurrying, already at the goal and not able to participate in the process. Perhaps this is the underlying societal gesture whereby children are treated as little adults, and perhaps the most effective way to rectify this situation is by addressing our underlying spatial imbalance.

The frontal plane has to do with time. One can be imbalanced forward and constantly be rushing head-first to meet deadlines. One can be imbalanced backward and be *behind the times*. One can be balanced between front and back and be fully *present*. Military troops *present* themselves to the general in frontal planes.

The frontal plane also has to do with will. In a group setting, if a speaker asks for volunteers, he asks if anyone is *willing to come forward*. If someone doesn’t want to volunteer, he tends to *recede into the background* where he hopes he won’t be noticed.

Classic games from this second period of life include Mother May I?, Red Light/Green Light, and Red Rover. These games deal with will and with timing—in other words, with impulse control. At an unconscious level, these games demand answers to major questions of this period: when do I go forward, and when do I hold back? The infant and the toddler are especially challenged by having to wait. The early childhood teacher knows that the younger the children, the less are they truly able to wait at the table for their food. It is the teacher who must *plan ahead*, have everything ready to go before calling the children to the table, and then implement a very short and simple grace. It is not reasonable to expect more from them in the frontal plane because developmentally they are not there yet. Here rhythm is crucial to carry the children.

Perhaps the quintessential frontal-plane grade-school game is tag. The variations of tag are enormous. The child must have awareness of those in front of him so that he doesn't run into anyone, with simultaneous awareness of what's happening behind him so he doesn't get tagged. This is a very complicated spatial activity. Tag is being banned in public schools across the country because children get hurt. This is a shame because grade-school-aged children naturally love this game; it meets them. It is true that children today are often ahead of themselves, for after all they are part of the society, yet it is possible to teach tag in safe ways if the teacher understands how the children in her care are living in their space and how to work with this.

Learning to jump rope with the rope turned for the child is an appropriate activity in the kindergarten for those approaching first grade. Having the child run through the turning rope and to run in and jump is better left for first grade, as this is a significant frontal plane activity. The first grade teacher knows that she needs to have a relationship with the children before she asks them to run through the turning rope. This is a threshold experience for them, and for some it can be frightening. Here the rope is turned at a steady pace. In order to successfully negotiate the rope, some children have to speed up, and some have to slow down. The children must change themselves in order to meet the world (the rope); they have to develop fluidity and mastery in the frontal plane. There are great mysteries in classic children's games—children are learning spatial gestures, which can have cross-over effects and can serve them later in life. Perhaps if the children can learn to run through the jump rope, later on they won't have "the bus left me" experiences. For in truth the bus does not leave us behind; it is we who don't get ourselves to the bus on time.

The Sagittal Plane

In the third seven-year period, from fourteen to twenty-one, the child is primarily exploring the sagittal (right/left) plane, which is the plane of focus, the plane of thinking. If we are trying to find out what we think about something, we come to the midline of the body: we cross our arms, cross our legs, put our finger above our upper lip in the middle, and purse our brow. We may cock our head to the right or to the left of the midline. Then, once we know our mind, we release this pose and can express our thoughts.

In many places in his writings, Rudolf Steiner refers to the importance of the six fundamental exercises. These are practices designed to further one's inner

development and to assist in one's ability to work in the outer world as well. The goal of the first exercise is to direct one's thinking in a focused manner, to narrow down the possibilities and to only think about what one chooses to think about. This involves willed ability in the sagittal plane.

Developmentally the sagittal plane comes to the forefront at age fourteen, and it is interesting to look at the rudimentary beginnings of orientation in this plane. The newborn is not able to keep his head in the middle of the frontal or of the sagittal plane; under the influence of the primitive reflexes, his head is extended back and rotated far to the side. Only gradually is he able to bring his head to midline and control it there. The same situation occurs with the hands. Only gradually is he able to bring them to the sagittal plane midline, look at them there, and then use them there to play with toys or to pull on his clothes. In *Cradle of a Healthy Life*, Dr. Johanna Steegmans says, "If you've ever seen a young child meeting her own hands, looking from one to the other, this is what will bring thinking about: to be able to put two concepts into a relationship. That's the beginning of thinking" (p. 44).

Gradually, while lying on her back, she starts to bring her knees to midline and bring her hands to her knees, and then bring her feet to midline and bring her hands to her feet. As she starts to roll, she reaches across midline with her arm or leg. This is the beginning of crossing the midline.

When toddlers start to walk, they have a wide base of support, which gradually narrows as their balance improves. The two-year-old at the airport mentioned earlier was not linear because he was developmentally not yet at home in the sagittal plane. Over time he could learn to push a wheelbarrow, walk a balance beam, ride a bike without pedals, wind wool, and finger-knit at the midline. Gradually and steadily, he may gain more facility in the sagittal plane as he learns to ride a regular bicycle, walk the tight rope, and canoe. Gradually too, his thinking will evolve.

It's not appropriate to ask young children to unnecessarily narrow things down, as they are naturally wide in their space and in their thinking at this age. In their play, the possibilities are endless. A stick can be a person, a spoon, or a tree; and this can change in an instant. It reduces stress for young children if we refrain from offering them too many choices, because developmentally they have not yet achieved mastery in the sagittal plane.

Sports emphasize the sagittal plane, and this has potential to meet the teenager. Ability in the sagittal

plane is necessary to hit the bull's eye with an arrow, to shoot a basket, or to sink a putt. The sagittal plane is the plane of exactness, of merciless objectivity. It has the least flexibility. The ball is either in or out. The rules are rigidly adhered to, and this is appropriate for the teenager; things must be fair. However, for the young child and also for the grade-school-aged child, things are not so black-and-white. In the grade school the rules of games are flexible, and games support and encourage a wide variety of movements. With sports, the possibilities lessen; the variety of movement narrows down. There are repetitive drills and training requiring precision. However, for the young child, too many "narrowing requirements" are developmentally out of sync.

~ *An understanding of spatial development leads to realistic expectations and assists the adult in creating environments where the children can feel met and satisfied.*

An understanding of spatial development leads to realistic expectations and assists the adult in creating environments where the children can feel met and satisfied. We can look at activities with new eyes and evaluate their developmental spatial fit. One example is the walking ropes that are used to take young children for walks. These are ropes with regularly spaced knots or loops that children are to hang onto as they are led to walk in a prescribed path. It's interesting to note that these types of ropes were used to walk prisoners to Siberia during Stalin's reign. These ropes impose artificial sagittal-plane and frontal-plane structures upon the young child. It is a sagittal-plane activity in that they must walk in a line. It is a frontal-plane activity in that they must hang on to their loop and keep the correct spacing between the child in front of them and the child behind them, and they are expected to walk at the same tempo.

Similarly, expecting young children to hold onto hands, keep in line, and not fall outside a set speed parameter is also imposing potentially stressful spatial forms upon them that don't yet fit. Developmentally, young children are at home when they have time to meander, discover, and dream, with no imposed goal, just process. Considering our societal imbalance in the frontal plane, it is worthwhile to consider the benefits

of allowing young children periods every day where they *don't* have to hurry to keep up. When they come to the grade school, there is a developmental shift. Then it is right to expect them to start to walk through the halls in more or less straight lines and to modulate their tempos, but this doesn't happen overnight. It evolves over time as they come more and more into relationship with the sagittal and frontal planes.

As an early childhood teacher, one certainly may choose to employ a device such as a walking rope for young children if one has sufficient reason, such as safety when crossing a busy city street. However, it is helpful to recognize the developmental spatial misfit, to limit its use, and perhaps to think of the walking rope as a type of car seat—necessary under certain situations, but not ideal.

Rudolf Steiner has said that there is no education but self-education. Essentially he is telling us that we can trust development, that if we strive to remove hindrances and provide environments that meet the children, that self-education will occur; we don't have to teach them. A key point seems to be how to meet the child, and an understanding of spatial development is very helpful for this. Jaimen McMillan has an interesting observation regarding how one can recognize if the child has been met: if a child has truly been met, he will respond with joy. Jaimen notes that there's a difference between fun and joy. With fun, the children want more: bigger, better, faster, louder, more. They can get greedy; it's never enough. But with joy, they feel satisfied; they pause, savor the experience, and linger with the after-taste. They flow out and are filled up. *They feel met.* This is the plane truth: Go for the joy!

References

- Ellersiek, Wilma. *Dancing Hand—Trotting Pony* (Spring Valley, NY: WECAN, 2010).
- Goddard, Sally. *Reflexes, Learning and Behavior: A Window Into the Child's Mind* (Eugene, OR: Fern Ridge Press, 2005).
- Steegmans, Johanna & Karnow, Gerald. *Cradle of a Healthy Life* (Spring Valley, NY: WECAN, 2012).

Jane Swain is a graduate of the level III training in *Spacial Dynamics*. *Spacial Dynamics* is embedded deeply into Jane's work as a pediatric physical therapist, associate director of professional development at Sophia's Hearth Family Center in Keene, NH and as consultant to early childhood and grade school classrooms.