

HUMANS AS PLASTIC ACTION FIGURES
The Rev. Julie Stoneberg
Unitarian Fellowship of Peterborough
October 12, 2014

OPENING WORDS *When I Change* ~ *Ma. Theresa Gustilo Gallardo (adapted)*

We are here to find meaning in what we do; when we change, the world changes.
We are here to find our power even in those places where we feel powerless, and to get to know ourselves better so that we can see what we should do;
When we change, the world changes.
We are here to get rid of prejudice by appreciating our diversity and our differences; when we change, the world changes.
We are here to become teachers to each other, to spend time away from the what is usual and see new ways of being; when we change, the world changes.
We are here to see that our individual lives are full of countless possibilities.
When we change, the world changes.

Come, let us embrace that possibility together.

STORY FOR ALL *What Do You Do With An Idea?* ~Kobi Yamada

(In this story, an idea follows a little boy around until he figures out what to do with it.)

READING *from "The Brain that Changes Itself"* ~ Norman Doidge¹

In the book, *The Brain that Changes Itself*, which was our non-fiction book club's read for last month, Norman Doidge tells the story of how one of the great pioneers in the understanding of our brain's plasticity, originally came to study and focus on brain rehabilitation.

Paul Bach-y-Rita's father had a disabling stroke in 1959, at the age of 65. Following the stroke, Paul's brother brought their paralyzed father to live with him. After four weeks of typical rehab, their father was nowhere near better.

Though a medical student, Bach-y-Rita's brother knew nothing about rehab, and unencumbered by pessimistic theories, he decided that rather than trying to teach his father how to walk, he would teach him first to crawl, using the model of how babies learn. With kneepads and a wall to support his weak side, they practiced crawling for months...and played games on the floor...and turned normal life experiences into exercises. The regime took many hours every day, but little by little, their father got better. Eventually his recovery was complete enough, that at age 68, he started full-time teaching again.

The brothers made no connection between their father's improvement and brain plasticity; they didn't see this as anything other than 'taking care of Papa'. But when, seven years after his stroke, their father had a heart attack while hiking high in the mountains near Bogota, Columbia and died, Bach-y-Rita asked for an autopsy to be done.

The coroner called him with exciting news...wanting him to come see the slides of his father's brain. What they showed was that his father had had a huge lesion from his

¹ Pp 1-26

stroke and that it had never healed, even though he had recovered all those functions. How can someone recover with all that damage?

When Bach-y-Rita looked closely, he saw that the lesion was mainly in the brain stem – the part of the brain closest to the spinal cord – and in addition, other major brain centers in the cortex that control movement had also been destroyed. In fact, ninety-seven percent of the nerves that run from the cerebral cortex to the spine had been destroyed by the earlier stroke.

“I knew this meant,” said Bach-y-Rita, “that somehow his brain had totally reorganized itself. We didn’t know how remarkable his recovery was until that moment. Since there were no brain scans in those days, when people did recover, we tended to assume that there really hadn’t been much damage in the first place.”

His father’s recover triggered a career change for Bach-y-Rita. He went back to practicing medicine and did residencies in neurology and rehabilitation medicine. He went on to prove that our brains are a far more open system than we ever had imagined.

MESSAGE

Let me give you a little mental exercise. It's an experiment that has not been done before, so there are no expectations. There's absolutely nothing scientific about it, and I have clearly have no credentials. But play along with me, if you will.

Imagine that you have in your hand a ball of polymer clay, or what is sometimes called plasticine. Imagine that ball is you. Go ahead and decide what colour, or colours, it is, and decide how big it is. Squeeze it. Warm it up. Soften it. Press your fingers into it. Roll it around. Let it, that is, you, begin to take shape, whatever shape you choose. Use your imagination. Exercise your brain. Just keep holding onto it, and molding it, throughout the rest of the service. Okay?

Did you know that I used to play the bassoon? I was pretty good at it, too. There was a time when I played in all-state orchestra, and with a woodwind quintet, and I loved it. But I don't play bassoon anymore.

As I sat down yesterday to put today's words to the page, "This is My Music" was on the CBC, and the host was playing a piece that long-ago orchestra played, and I was transported to another time, another place, another age...and a bit of nostalgia set in...for who I used to be and what I used to be able to do.

(How's your lump of clay doing?)

If I subscribe to the 'old' way of thinking about how our brains work and how we learn, my response to that memory might be to accept that I had been able to learn to play the bassoon because I was young when my brain was still malleable. But that now, being 'of a certain age,' I could not learn, or do, such a thing because I am, at this point, losing brain cells with each passing day. Not only that, but my brain map, its functions, who I am and what I'm capable of doing, have been long established, set in stone as it were.

That's the old way of thinking. The new way says that our brains are not 'hard-wired' and unchanging. Those of you, and I know there are more than a few in this room, who have

picked up instruments in your retirement, and joined bands and orchestras and choirs...you know that it's possible to learn new things even at an advanced age. It is possible to 'teach old dogs new tricks,' maybe even to play the accordion!

It is true that it's easier when we're young...our brains then being in the 'critical period of plasticity'...and that it is harder as we age, but IT IS NOT IMPOSSIBLE. Our brains are changing and growing all through our lives.

Our brains are fascinating things...often referred to as gray matter...mysterious lumps. *The Brain that Changes Itself* is a book that presents a compendium of case studies in brain research, which is still a frontier in the world of science. The author, Norman Doidge, is a psychiatrist, researcher, and psychoanalyst; he undertook this work to both explain and enhance his own practice, asking just what is it that happens in our brains?

(Are you still holding and forming that clay?)

When I was a little girl, Barbies had just come onto the marketplace. I wanted one desperately. While I knew that such a novelty was a luxury for our family, one Christmas I found Barbie under the tree...one of the original variety...with a helmet of tight hair, little pearl earrings, perfect breasts jutting out from an impossibly slim waist, and feet permanently formed into an extremely unnatural arch. She was a static, unchangeable and unfortunate role model for many young girls. I can call myself fortunate to have grown out of my fascination with her pretty quickly, but not before I had also acquired a Midge doll, Barbie's friend. Midge was a bit more realistic...hair more inclined to be askew, a few freckles, and in the version I had, knees that bent realistically. I loved those knees; I bent them back and forth incessantly, playing out the various positions Midge could get herself into.

Although Barbie, to my dismay, lives on, now many children play with Transformers... plastic action figures of varying sizes and forms that have incredible capabilities to move and reshape themselves...from super heroes to cars, from warriors to spaceships, from good guys into bad guys and vice versa. What might these toys say about our view of human nature?

That's what I want to talk about today....our perception of our own nature and our capabilities, and about how those perceptions and assumptions might create and inform our ability to change and grow.

The case studies in Doidge's book are mostly about either brain injuries or brain defects... stories about using sensors on the tongue to send messages to the brain that compensate for and replace a sense of balance, and even sight...the story of Barbara Young, who grew up in this Fellowship, who overcame major birth defects...a story about a person with OCD (obsessive compulsive disorder) who learned to train her brain to 'turn the page' in order to get out of a rut...a story about a man with a sexual addiction who re-trained and re-directed his tendencies...a story about alleviating phantom limb pain by tricking the brain into thinking the limb is healthy and moving easily...all hopeful...all speaking to our brain's incredible capacity to change.

And through these stories, there is a clear underlying message. Our brain, our grey matter, is plastic. (Just like the plasticine you're working in your hands.) It can change form in order to adapt to whatever functions it needs to be doing, or has been trained, habitual-ized, to do.

And understanding this, if we can both believe and internalize this reality, we are more likely to be able to change ourselves....to correct behaviours, to form new habits, to redirect our thought patterns, to act more in accordance with our values.

One caution: Doidge introduces what he calls the plastic paradox, which is to say that our brains do not contain a moral compass. (He implies that moral compasses are formed and created in cultures, which are in turn formed, created by, what happens in our brains.) Strong neuron pathways exist for unhealthy behaviours and thought processes just as easily as for healthy ones. So, how do we change and grow in the directions we choose?

Here at the Unitarian Fellowship of Peterborough, "we foster personal transformation," at least that's what our purpose statement says that we mean to do. The idea of 'personal transformation' is central to both the purpose of spirituality and the ideals of religion. Personal transformation is part of the 'what' we're trying to with the 'ball of plasticine' that we hold as a community...transformation toward more love, more justice, more understanding, more accountability. (Think about that as you continue to mold the clay in your hands...more love, more understanding, more accountability, more justice.) We are human transformers.

But how? How can transformation happen? Here are a few simple metaphors.

First, imagine that you are planning to drive from Vancouver to Peterborough, and that you find that the TransCanada highway has been closed, shut down, for the entire distance. What do you do? Look for alternate routes. Follow the detour signs. Get out a map. Ask for directions. You become resourceful and you find a new way.

The neuron pathways in our brains work like a map, with well-traveled roads being the default. The more we travel those roads...by responding to a certain thought with a certain motion or behaviour, or even by feeling a sensation in response to certain stimuli...the more intractable they become, so that it's harder and harder to even find the alternative routes. But, when a roadway is closed, the brain becomes resourceful, and our neurons find other ways to connect.

Another way to think about this is to imagine our brains as a sledding hill, laid with soft, untouched snow. Learning something new is like the toboggan's first pass down the hill...sluggish, jerky, unsure of the path... but on subsequent trips down the hill, it becomes easier and faster, that is, if you're willing to follow the same tracks. To take an alternate track becomes harder and harder. (Are you still molding yourself toward more love?)

So it is with our ability to change. The more often we do something, the more often we have particular thoughts, the more we respond to certain stimuli, the more likely we are to follow that same pattern in the future.

But really, how do we change? One chapter in the book tells the stories of people with OCD. The stories are heartbreaking...about repetitive, debilitating behaviours that seem impossible to control.

See, normally, when we make a mistake (or do something we'd like to change), three things happen. First we get that nagging 'mistake feeling' that starts in our orbital frontal cortex. Then, a signal is sent to our cingulate gyrus deep in the cortex, and we become anxious, literally feeling dread in our gut. Third, after correcting the mistake, our caudate nucleus shifts gears and allows us to move on to the next thought, putting it all behind us.

For someone with OCD, the brain can't move on, it's stuck in the track of feeling the mistake and trying to correct it, on an endless loop that doesn't allow one to move on.

Psychiatrist Jeffrey Schwartz from UCLA has been working on tricking the brain by manually 'shifting the gears' that are stuck. The treatment he's designed involves re-labeling the behavior as an obsession and not focusing on the content, paying constant, effortful attention, catching the obsession mid-cycle, and then avoiding the old track by focusing on something else, a pleasurable activity. It's sticky, hard work, but eventually the brain learns to work around the obsession.

While we may not be obsessive, at least not about everything, our brains do have established patterns that are difficult to break. Judgment. Anger. Over-eating. Prejudice. Micro-managing. Distraction. Negativity. Using Schwartz's model, our 'transformation' might look something like this:

I am aware that I respond to anything foreign or unknown with fear, and that I express that fear by becoming more rigid in my established ways. I would like to change this pattern because it clashes with my stated values and I don't like how it feels. So, one day, when I notice that fear well up in me in the presence of someone with differing views, I say to myself, "Oh, this is just my fear of unknown situations. I am safe and not in any danger. Rather than fear, I choose to respond with curiosity." I relax my posture, and release the tension I feel in order to be open to this new idea or person, and I focus on asking questions in order to understand. "Tell me about how you came to believe that." "Why is this important to you?" "How does believing this serve your life?" "Tell me more." And each time I respond this way, a new pathway, or way of being, becomes a greater possibility.

It's like that repetitive scene in the movie *Groundhog's Day*, where Bill Murray keeps waking up to the same day, over and over. Every morning he steps in the same puddle, but eventually, he decides he is NOT going to step in that puddle again, and he finally catches himself, and goes around it, forming a new pattern, a new neuron pathway. Can you imagine new patterns and possibilities in the clay that you are molding?

So, using the new findings about how our brains work as a model for our personal transformation, the action plan would read like this:

1. Identify the behaviour you want to change, or the behaviour you want to start
2. Focus your attention, as constantly as you can manage, so that you catch yourself in the midst of the pattern you want to change
3. Take a new path by actually doing something different. Get off the 'same old thing', or as Doidge says, turn the page in your brain.
4. Take incremental steps if necessary. If you can't make the 'huge leap,' build a bridge. Crawl before you try to walk.
5. Repeat. Repeat. Repeat. Then repeat again.
6. Be patient and persistent. The older we are, and the more entrenched the patterns, the longer it takes to retrain our brains. But, it can be done.

A huge possibility for humanity that Doidge lifts up is the possibility of our thoughts...our imaginations...to actually change things. Numerous experiments have shown that imagining doing something is nearly as powerful as actually doing it...such as practicing the piano, or

strengthening muscles by means of mental contractions...the power of positive thinking, or negative thinking for that matter. Isn't that mysterious, and a wonder?

Erica Nol once told me that her violin teacher said that it was as important to hear the note you want to play before playing it, and that doing this would actually affect how accurately one's fingers landed on the strings, as where one puts their fingers is how the correct note is sounded. This book confirms that...that imagining something can bring it into being. For me, this is the power of gathering in community as we do...that we might align ourselves with those things of significance, to imagine them coming into being, and then practicing them within ourselves, in our relationships, and out in the world.

And, this 'imagining' is why I've 'given' you that piece of plasticine this morning, that you might feel, know, and believe in your ability to change and be changed. We are plastic, in perpetual alternation.

I close with the words of e.e.cummings:

i thank You God for most this amazing
day: for the leaping greenly spirits of trees
and a blue true dream of sky; and for everything
which is natural which is infinite which is yes

(i who have died am alive again today,
and this is the sun's birthday; this is the birth
day of life and of love and wings: and of the gay
great happening illimitably earth)

how should tasting touching hearing seeing
breathing any-lifted from the no
of all nothing-human merely being
doubt unimaginable You?

(now the ears of my ears awake and
now the eyes of my eyes are opened)

May our ears awaken and our eyes open, never to doubt the unimaginable that is YOU.
Amen.

READING *Within This Instant* ~ Thomas Rhodes

Within the space of an instant, you can
make a first impression
show gratitude,
kiss,
change your mind,
wipe away a tear,
live, and die.

It only takes a minute to
write a note,
tell a joke,
change a diaper,

sing a song,
or be still.
Within an hour you can
share a meal,
run an errand,
make a cake, or make love,
attend a parade,
or balance your checkbook.
(Sometimes.)

It takes a day to
paint a room,
feed a crowd,
visit relatives,
read a book,
rest.

If you commit a year, you can
write a book,
plant and harvest a crop,
become a parent,
change your life.

And with your lifetime,
and with your life,
you can, and you will,
change the world.

CLOSING WORDS

~ Erik Walker Wikstrom

If you are who you were,
and if the person next to you is who he or she was,
if none of us has changed
since the day we came in here —
we have failed.

The purpose of this community —
of any church, temple, zendo, mosque —
is to help its people grow.

We do this through encounters with the unknown — in ourselves,
in one another,
in “The Other” — whoever that might be for us,
however hard that might be —
because these encounters have many gifts to offer.

So may you go forth from here this morning
not who you were,
but who you could be.
So may we all.