Integrating the Science of Change into Organizations

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We are our memory.

A type of memory called Experience-Based Memory (EBM), referred to also by neuroscientists as Implicit Memory, dictates how we interpret reality. The neural "wiring" of the EBM in the brain dictates how effective and how efficient we are in everything we do.

The EBM is where we encode rules, skills, values, habits, and everything else that defines who we are, away from our awareness. To change a skill or a habit, we must deliberately engage this experience-based system in our brain.

Without engaging the EBM, people gain knowledge about the needed change, but are unable to translate that knowledge into practice in a lasting way.

Without a system to engage the EBM, managers and other change facilitators have to depend solely on intuition to facilitate growth. When trying to get someone else to adopt change, managers often meet high resistance. They must devote great attention to sustain the change and, typically, results are inconsistent or short lived.

KCI's expertise is in providing managers with the ability to deliberately engage the EBM, guiding teams and individuals to build new experience-based ways of reacting so that teams can access higher effectiveness, with low resistance, and in a lasting way.

It is through physical changes in the synaptic activity of EBM in the brain that we can improve the mastery of many specific skills such as sales, communication, conflict resolution, customer service, problem solving, innovation, and project management.

Why is lasting change different from change that does not stick?

Memory, to most people, is the ability to consciously recollect what happened in the past. But this type of memory, called Knowledge-Based Memory (KBM), or Explicit Memory, as many neuroscientists refer to it, is only one of two types of memory that shape the way we operate.

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The EBM, a second type of memory, is the foundation of who we are.

A shift from being reactive to being proactive requires a change in EBM structures. Becoming more accountable and taking more responsibility leads to changes in the EBM. Each time we seek to improve in a lasting way, we need to create new "pathways" in our EBM to represent the change.

When organizations, teams, and individuals try to adopt a new set of values, habits, or skills to better deal with team dynamics or improve their time management or sales skills, experience-based systems must be involved.

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Each time a step is taken in the direction of change, we make daily choices that reinforce an old way of doing things or a new way of doing things.

The old ways of doing things start off as dominant. When organizations go through a merger and their teams have an old habit of resisting change, the dominant response will be resistance. We can talk to teams about being accepting and flexible, but it is what they practice that dictates what is being reinforced.

As soon as we start introducing change, the old ways start competing with the new.

If we try to guide teams undergoing a change to be less resistant, their brain will activate two paths simultaneously: the old one and the new one. Because the "old one" is more dominant, unless new habits are being integrated into practice and experience through proper support, the old habits of resistance will quickly regain control.

To make change last, we must construct new EBM imprints that will successfully compete with the old ways. The EBM is the foundation that dictates change: If we "fight" the experience-based systems with knowledge-based tools, the EBM will always "win" in the long run and desired change will have only short term results.

What do we know about Knowledge-Based Memory?

According to research in neuroscience, these two types of memory, the EBM (implicit) and the KBM (explicit), operate differently and lead to different results. While the KBM leads to the retention of knowledge, the EBM leads to the acquisition of habits and skills.

Knowledge can be stored through lectures, books, online presentations, etc. It will lead to conscious awareness and storage, not to change.

Studies show that engaging the KBM with the intent of delivering change will, at best, lead to lasting change in 10-20% of cases. This means that in any given change process, if the process engages the KBM, the investment in change will lead to the desired results 10-20% of the time.

It is estimated that the 10-20% that can "translate" knowledge-based communication into change is doing so by applying a process called *Cortical Consolidation,* a process by which the brain of some can "translate" knowledge into experience without further training or guidance. In the other 90% of cases, engaging the KBS leads to the retention of knowledge only and hence does not lead to desired results.

> ***"…in any given change process, if the process engages the KBS, investment in change will lead to desired results in 10-20% of individuals involved."***

Because KBM can sustain change through awareness, it can lead to short term desired results. As long as a team or an individual sustains the awareness, the new skill will be present. As soon as a distraction comes along, old habits will return to rule. KBM is not the right platform for teams and individuals to adopt a new default response.

When using the KBM, as soon as the awareness fades away, as it often does in the face of the demanding needs in business, the change will fade and lasting results will not follow.

We all have met teams and individuals who decide to start a new regiment, committing to perform a new task during meetings: "from now on we will…", deciding to go on a diet, promising that the old ways will be in the past, only to see the old ways reemerge again a few weeks later to the defeat of the new.

> ***"The EBM dictates our skill sets and habits, even when we don't remember creating them."***

If you are in a communication workshop that is designed to engage the KBM, learning to be empathic, for example, you may as a result know that you are supposed to be alert to emotional cues or that you are supposed to repeat back your understanding of what has been said, but you are unlikely to change your behavior as a result.

In most cases, as soon as you go back to work, when an opportunity presents itself even only a few days after the workshop, there is a very high likelihood you'll go back to your old way of listening. This is simply because knowledge doesn't replace habits.

What do we know about the Experience-Based Memory?

Studies in Alzheimer's patients and amnesia patients shed light on the nature and functionality of the EBM.

In Alzheimer studies, while patients cannot recall details from their past, they can still perform many daily tasks with the same level of mastery they did before they were affected by the disease (like playing an instrument for example).

These studies prove that even when the KBM is damaged and we cannot consciously retrieve knowledge, a deeper memory type is active, retaining our skills and habits without us being aware of it.

EBM dictates our skill sets and habits even when we don't remember creating them. Those skills and habits form an "invisible" set of rules and a loop is created: every time we practice the skills or the habits we further reinforce the strength of the rules and hence we are more likely to retain those habits and repeat them next time the opportunity presents itself.

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Research shows that experience-related memory isn't stored in one region of the brain, but instead in the neural-synaptic activity throughout the brain.

Unlike any other cells in the human body, brain cells (or neurons) directly communicate with one another through synaptic connections. Each time we think, feel, or act, a neural-synaptic pathway in the brain is activated.

Additional studies in amnesia patients shed further light on the special features of the EBM system. Studies show that amnesia patients can learn to perform some tasks that depended on *priming* (prior learning). The more times amnesia patients do certain tasks the better they get at doing them despite the fact they cannot remember any of the previous times they performed the task.

These studies show that the EBM can create new "rules," even without the retention of the knowledge associated with these rules by the KBM.

An experience-based "memory," a single rule, if you will, is represented in the brain as a synaptic pathway. When individuals and teams are in the habit of joking around in response to a stressor, or jumping into action before thinking the solution through, that response is represented in the brain as a chain of neurons firing through their synaptic connections. Each time the team responds in the same way, the synaptic pathway is reinforced further, strengthening the likelihood the team will choose the same response next time it is presented with a similar situation.

In business, when a team needs to adjust to exterior changes, the team itself needs to change.

If the team is encouraged to change through knowledge-related activities, very little, if any, attitude or behavioral change can be expected.

How are new experience-based memories created?

Our EBM, through experience, adjusts throughout life. The brain undergoes a process of adjustment as a result of experience.

Experience alone isn't enough. A manager may repeatedly instruct a team member to perform a task, the team member may perform the task as instructed, and, still, after many repetitions, the employee may not acquire the new habit or skill.

What is it that makes experience translate into an acquisition of a new value, habit or skill?

Experience shapes the brain throughout life by altering the connections among neurons.

It is the very process the brain undergoes to create a new synaptic connection that we are after.

KCI solutions provide managers and change facilitators with the ability to deliberately guide change. We equip managers with a new toolkit, one that can lead people who are struggling with change to lasting desired results. Because the steps of creating change are not left for the random abilities of the particular individual/team (giving the change a 10-20% chance of success).

How is it possible to change synaptic pathways in the brain?

In his book, *Synaptic Self*, Joseph LeDoux, a professor of science at the New York University's Center of Neural Science reviews the issue of plasticity, our brain's ability to change. LeDoux discusses many resources for the plasticity phenomenon to present the conclusion that our brain is "assembled" during childhood, but that our synaptic connections have the ability to change throughout our lives.

> *"The synaptic pathways in our brain have the plasticity, to change throughout our lives…."*

At an early age, genes dictate that our brain is a human one and that our synaptic connections, though more similar to those of our species and even more similar to members of our family, are nevertheless distinct.

Then through experiences, our synaptic connections are adjusted, further distinguishing us from other individuals and developing on an ongoing basis.

The synaptic pathways in our brain have the plasticity to change throughout our lives as we develop. "Although the extensive plasticity that is present in early life eventually stops, our synapses do not stop changing, but remain subtly changeable by experience." Joseph LeDoux, 2002

> *"…when neurons fire repeatedly, new proteins are synthesized which allows for new neural synaptic connections to be created."*

Eric Kandel (recipient of the 2000 Nobel Prize in Physiology of Medicine for his research on the physiological basis of memory storage in neurons) found that when neurons fire repeatedly new proteins are synthesized which allows for new neural synaptic connections to be created.

While new synaptic connections can be created and reinforced, the way in which those connections are created has unique, specific requirements. Experience-based memories that can lead to long term effective change are created as the brain follows certain steps.

Creating a new habit means creating a new experience memory. Creating a new experience memory means following a sequence of steps.

Following the steps means acquiring a new, effective default process with low-resistance.

How do KCI solutions integrate science into business?

The EBM "prefers" totally different and sometimes contradicting ways of encoding to the way the KBM does.

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For example, research shows that knowledge-based learning is more effective when information is incorporated gradually through interleaved learning rather than if rapid learning is used (McClelland et al. 1995). This means that for the KBM, it is better and faster if the connection between facts is layered in its presentation:

- Step 1: Herbivores do not eat meat.
- Step 2: Carnivores eat meat.
- Step 3: Some dinosaurs are carnivores while others are herbivores.

The EBM on the other hand "learns" much faster by association, linking stories, common themes, and patterns.

As another example, KBM benefits from repetition of the same sequence.

If, for example, you are trying to explicitly "memorize" a list of groceries, it is more efficient if you repeat the same sequence over and over again in the exact same order, instead of mixing up the sequence every time you run through it.

Furthermore, research shows that for optimal knowledge retrieval, it best to approximate the conditions of the "storage" to the conditions that will be present during retrieval. In other words, the more similar the cues, the easier it is for the KBM to "remember."

The EBM, on the other hand "prefers" variation. "Science has shown that the brain makes generalizations from repeated experiences. These generalizations become a part of the EBM, and are thought to be created in the patterns of neural firing…of vision, hearing, touch, taste, and smell that accumulate in repeated interactions." (Daniel Siegel, MD, Center for Culture, Brain and Development UCSD, 2004)

There are several other key principles to engaging the EBM that we integrate into all of KCI's solutions, all leading to the same result: engage the EBM and guide the brain to follow the sequence so a new skill, habit, or value, is acquired in a lasting way.

Despite the complexity of the science, KCI's solutions present clients with a change system that makes those principles seamless to follow:

- Solution Assessment – Identifying the skill/strategy that if acquired will lead to desired results.
- Equipping managers and change facilitators with the ability to engage the EBM.
- Guiding managers to facilitate change through Extraordinary Mentoring™ (for individuals and team who don't want to change) and Direct Mentoring™: following a five-stage system for acquiring change.

KCI's solutions give executives, managers, teams, and entire organizations the ability to identify the specific synaptic pathways that would most quickly and with the least effort lead to desired results.

KCI solutions guide managers to facilitate low resistance change by directly engaging the EBM.

KCI experts are experienced senior executives and consultants certified in designing and applying KCI's solutions. We are always delighted to explore our solutions with you.

Which new effective synaptic pathways, if integrated into your team's everyday habits, would increase your team's productivity and performances?

Which neural synaptic pathways, if acquired by your team, would allow your team to quickly achieve desired results in a lasting way?

Yours,

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Related sources and further reading:

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It will be our pleasure to guide you if you'd like specific references on a specific application or topic.