Utilizing our Motivational Flow for Better Learning Outcomes

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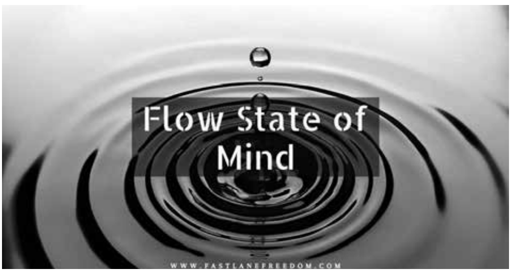
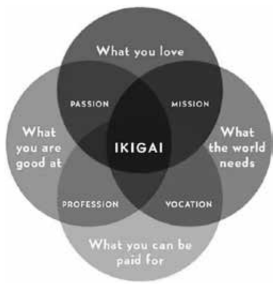
Most people have heard the phrase, “Just go with the flow” in Hawaii. This popular Hawaiian phrase” “ho’onalu” means “to go with the flow” or “to be like a wave.” Basically, the Hawaiian cultural philosophy of “living in harmony with nature and in the present moment” can be felt and resonates with these spoken words when said to those who may be struggling against accepting what is around them in a given moment of time.

In comparison to this Hawaiian idiomatic phrase in “creating flow” for one’s precious life, the popularized Japanese philosophical concept of “ikigai” (生き甲斐) is a stable, mindset among those who live the longest and demonstrate a positive attitude with a high degree of emotional awareness. They can manage their emotions during times of setbacks. As shown in the Venn diagram below, this “existential fuel” lies at the intersection of what you love, what you are good at, and what you can do for yourself.

In keeping up with our students today with high-tech skills, instructors are now being trained by online web-based seminars around the world. Nowadays, instructors from elementary schools to universities levels at the global levels are





integrating the current scientific research based on the “flow” state in the brain. This research also includes neuroplasticity which is how our human brain adapts in learning new skills. More recently, instructors are also combining various cultural concepts from the past by integrating them into a more holistic modern approach to learning new things, especially in regard to second language learning (ESL).

INTRODUCTION

This research paper centers around the concept of the “flow” state of mind which enhances learning based on the scientific inquiry on what makes us “be our best” in this state of mind. What was discovered is that high levels of “flow state” in individuals are due to the natural chemicals in our brain cells. This can be especially noted among top athletes who effortlessly master their sport specialty. Neurologists are using brain scans and MRI imaging techniques on the brain of older and younger individuals who can stay focused for longer periods of time without the conscious connection to time and space, especially with regard to video game mastery. The research survey questions center on “What makes an individual stay in tune with what they are learning so intently for hours and with high levels of concentration?“

WHAT IS FLOW EXACTLY?

If you’ve ever felt completely absorbed in something, you might have been experiencing a mental state psychologists call “*flow*.” This can be described as the feeling you get when you’re so immersed in a task—whether you’re working out, drawing a picture, cooking a meal, or some other enjoyable task—that time seems to fall away.

Recent articles suggest that in achieving this “flow” state can help people feel greater enjoyment, be energized, and be involved with what they are doing during this time. Specifically, the “flow” is a state of mind in which a person becomes fully immersed in a given activity of personal choice. Positive psychologist Mihály Csíkszentmihályi describes “flow” as a state of complete immersion in an activity.

Imagine for a moment that you are running a race. Your attention is focused on your body's movements, the power of your muscles, the force of your lungs, and the feel of the street beneath your feet. You are living in the moment, utterly absorbed in the present activity. Time seems to fall away. You are in the "flow" state of mind as described here.

WHO IS MIHÀLY CSIKAZENTIMIHÀLY, THE FATHER OF FLOW?

Mihály Csíkszentmihályi, often referred to as the "father of flow" is a Hungarian American psychologist who had coined this term "flow" to describe a state of optimal focus and enjoyment in a given activity. His profound research on this topic had a lasting effect on psychology today, especially in the areas of work and sports. He is often credited in shaping the field of "positive psychology", and has influenced a newfound direction toward a more positive approach toward our life's goals. Most notably, Professor Csíkszentmihály's influence in understanding our emotional state of happiness, and how creativity and human fulfillment can be reached through this practice. He has numerous publications on this topic, and is the director of "Quality of Life Research Center" at Claremont Graduate University in California (USA),

WHY IS THERE A GREAT INTEREST IN THE "FLOW" STATE OF MIND TODAY?

Ongoing developments in the "flow" experiences on the human brain show researchers in the field of psychology and neuroscience. These scientists describe this "flow" state of mind occurs when a person is totally immersed in an activity. As indicated by many research papers to date, this "flow" state can occur during various tasks such as when a person is learning new things, being creative through the arts, or participating in a sport activity. When in a "flow" state, people pay no attention to distractions, and time seems to pass without notice according to multiple surveyed questionnaires.

"The ego falls away. Time flies. Every action, movement, and thought follows inevitably from the previous one, like playing jazz music, for example.

Your whole being is involved, and you're using your skills to the utmost," Csíkszentmihályi said in an interview with ***Wired Magazine***:

According to Csikazentimihalyi, he describes the "flow experiences as occurring in different ways for different people. It often happens when you are doing something that you enjoy and in which you are quite skilled at and want to develop even more through various challenges. This "flow" state is often associated with the creative arts, such as painting, drawing, or writing. This is not limited to the creative fields since this can also happen while engaging in a sport, such as skiing, tennis, soccer, dancing, or running."

WHAT ARE THE BENEFITS OF THE FLOW STATE OF MIND?

Flow doesn't just make activities more enjoyable, it also has a number of other advantages. Here are the following listed below:

Emotional Regulation

With increased flow, people experience growth toward emotional complexity. This can help people develop skills that allow them to regulate their emotions more effectively.

Fulfillment and Happiness

People in a flow state enjoy what they are doing more. Since these tasks become more enjoyable, they are also more likely to find it rewarding and fulfilling. Research also suggests that flow states may be linked to increased levels of happiness, satisfaction, and self-actualization.

Intrinsic Motivation

Since "flow" is a positive mental state, it can help increase motivation. Intrinsic motivation involves doing things for internal rewards (how they make you feel) vs. external rewards (such as prizes or payment).

Engagement and Performance

People in a flow state feel fully involved in the task at hand. Researchers have found that "flow" can enhance performance in a wide variety of learning environments.

Learning, Skill Development, and Creativity

Stemming from the act of achieving flow indicates a substantial mastery of a certain skill, people have to keep seeking new challenges and information to maintain this state. Flow states often take place during creative tasks, which can help inspire greater creative and artistic pursuits.

Generally, the findings based on brain scans show that the "flow state" is often associated with increased happiness, higher intrinsic motivation, greater creativity, and better emotional regulation, among other positive effects.

WHAT ARE THE CHARACTERISTICS OF THE FLOW STATE OF MIND?

According to Csíkszentmihályi, there are 10 factors that accompany the experience of "flow." While many of these components may be present, it is not necessary to experience all of them for flow to occur:

1. The activity is intrinsically rewarding.
2. There are clear goals that, while challenging, are still attainable.
3. There is a complete focus on the activity itself.
4. People experience feelings of personal control over the situation and the outcome.
5. People have feelings of serenity and a loss of self-consciousness.
6. There is immediate feedback.
7. People know the task can be done without great effort, and there is a balance between skill level and the challenge presented.
8. People experience a lack of awareness of their physical needs.
9. There is intense concentration and focused attention.
10. People experience timelessness or a distorted sense of time that involves feeling so focused on the present that you lose track of time passing.

The prevailing theme here is that "flow" happens when you do something that tests your skills, but one can accomplish each task with confidence. You're in control, focused, and getting immediate feedback on how you're doing. When this happens, you become so immersed, so focused on the task that you don't even notice how much time has passed.

WHAT HAPPENS TO THE BRAIN IN THIS FLOW STATE?

Research has found that there are changes in brain activity during “flow” states. While research is ongoing, there are two theories that have been proposed as follows:

- **Transient hypofrontality hypothesis**: Some research has found that being in a flow state is associated with a decrease in activity in the prefrontal cortex of the brain. This region is essential for higher cognitive functions, including memory and self-consciousness. Reduced activity in this region may explain why people experience a distorted sense of time and loss of self-consciousness.
- **Synchronization theory**: According to this theory, flow allows certain regions of the brain to communicate with one another more effectively. At the same time, while in a “flow” state, activity in the frontal cortex may increase, thus contributing to higher thinking.

Other research suggests that there is also an increase in the activity of dopamine (a brain chemical involved in pleasure and motivation) when people are experiencing flow.

THE IMPORTANCE OF LEARNING MORE ABOUT THE FLOW STATE IN EDUCATION TODAY

Csíkszentmihályi has suggested that overlearning a skill or concept can help people experience “flow.” Another critical concept in his theory is the idea of slightly extending oneself beyond one’s current ability level. This slight stretching of one’s current skills can help the individual experience “flow” as the novelty aspects of learning something new keeps one from getting bored and active in the learning stages.

Flow in Sports

Engaging in a challenging athletic activity that is doable but presents a slight stretching of your abilities is a good way to achieve “flow.” Sometimes described by being “in the zone,” reaching this state of flow allows an athlete to experience a loss of self-consciousness and a sense of complete mastery of the performance.

Flow in the Workplace

Flow can also occur when workers are engaged in tasks where they are able to focus entirely on the project at hand. For example, a coder might experience this while trying to solve a programming problem, or an interior designer might achieve flow while brainstorming ideas for a new design project in a given space.

Next, it is important to note that the concept of flow is all due to those who had dedicated their lives in pursuing higher knowledge and the importance of improving our daily lives in substantial ways. For this paper, let us learn more about how this all came about in the last few decades of brain and cognitive research.

NEUROPLASTICITY (FLEXIBILITY OF DEVELOPING OUR BRAINS FOR FOCUSED FLOW)

Advancements in neuroscience research have led scientists to a stronger understanding of how students learn in their classroom environment. Technologies such as neuroimaging have allowed researchers to observe how information moves from the body's sensory intake system to the brain's higher-order cognitive processing system—in as little as 13 milliseconds! (Trafton, 2014). Scientists know that our neurons, or brain cells, can grow, strengthen, organize, change, and adapt with time and experience. This fascinating ability is called neuroplasticity. Specifically, this change in our brain wiring capacity allows us to continue to learn new things into adulthood and at an older age. The brain's plasticity means it can sometimes regain lost function after an injury by rewiring some neurons to take over the responsibilities of other, damaged neurons. An understanding of neuroplasticity is advantageous for educators. The young brains in our classrooms are actively growing and changing every single day (Bernard, 2010).

Educators help shape these developing brains through teaching and mentorship. Certain instructional strategies, such as repetition and activating prior knowledge, are known to promote students' cognitive development by supporting brain plasticity. The capacity for neuroplasticity is also advantageous for students with disabilities who benefit from multiple and alternative presentations of content.

Neuroscience research teaches us that neural networks are strengthened through multisensory learning and building upon existing connections. While students with disabilities are not likely to overcome congenital deficits or skills lost in the early years of life through brain plasticity, high-level skills such as reading, writing, and mathematics can continue to develop over their lifespan (Thomas, 2018). Students with disabilities need specialized instruction to help their brains form and strengthen the neural networks that solidify new learning.

Generally, the "flow state of mind" often happens during creative activities and athletic pursuits. While there is a higher chance for this "flow" state to be experienced by artists, writers, or athletes, the ongoing research shows that this can be done by anyone. Notably, this "flow" state can happen anytime a person is deeply engaged in a task, including during learning activities and work-related projects.

FATHER OF NEUROPLASITY: SANTIAGO RAMóN Y CAJOL

Most experts consider Santiago Ramón y Cajal to be the "father of neuroscience." In the early 1900s, Ramón y Cajal, a Spanish neuroscientist, pathologist, histologist, and visual artist, produced groundbreaking illustrations of brain cells that showcase the interconnectedness of the brain's neurons. These illustrations have traveled to various galleries and museums as part of a display called The Beautiful Brain: The Drawings of Santiago Ramón y Cajal (Grey Art Gallery NYU, 2018).

Ramón y Cajal was the first to observe that the human brain can and does change into adulthood, suggesting that neurons are constantly forming new connections (Ackerman, 2020). About 50 years later, Polish neuroscientist Jerzy Konorski became the first to use the term neuroplasticity in his 1948 book, Conditioned Reflexes and Neuron Organization (Bijoch, Borczyk, & Czajkowski, 2020). In this work, Konorski described learning at the cellular level and called it synaptic plasticity, or the change in the connection between neurons. He emphasized the idea of preexisting connections between different regions of the brain and suggested that neuroplasticity is not just the establishment of new connections between neurons but also the remodeling of existing synapses (Bijoch, Borczyk, & Czajkowski, 2020). At the time, this idea of repurposing existing neuronal connections was revolutionary.

In the 1960s and beyond, more research into this "repurposing" of existing neuronal connections led to the discovery that neurons could reorganize after a traumatic event— like a brain injury. In some cases, with extensive therapy, critical functions such as speech and motor movement can be relearned.

WHO ARE THERE NEUROTYPICAL LEARNERS?

A neurotypical student is one who thinks and behaves in ways that are considered "ordinary," "typical," or "expected" by the general population. Neurotypical students do not display intellectual or developmental differences that set them apart from their peers in a clinically significant way. Of course, neurotypical students have both strengths and weaknesses and sometimes need extra help, as do their peers with disabilities.

NEUROPLASTICITY AND THE WHOLE CHILD APPROACH TO TEACHING

This term tends to describe students who are making expected progress across developmental milestones more than describing the students' neurological abilities in the classroom environmental setting. The two terms are not quite interchangeable, but there is certainly overlap. In a school setting, students who are neurotypical, or typically developing, usually participate in the general education curriculum. An effective teacher employs instructional and behavioral strategies that work for these students most of the time.

For example, consider Mr. Thais, a seventh-grade English general education inclusion teacher. Mr. Thais has 25 students in his class and recently finished teaching a unit on persuasive writing. His final prompt asked students to consider the inherent value of music. He explained that archeologists have discovered ancient instruments carved from bird bones and elephant tusks, demonstrating that music has been around for a long time.

Then, Mr. Thais asked the class to consider why music exists at all, given that it does not provide food or shelter or medicine necessary for survival. Students got to work responding to the prompt: "Make an argument for the value of music for human beings."

What happened next is that most students were intrigued by this assignment because they felt empowered to share their opinion about why music is important. Mr. Thais led the class through the writing process using modeling, graphic organizers, sentence starters, and other support to guide his students.

Some students needed additional interventions, but everyone eventually reached the final draft stage and submitted their work. In his reflection of this lesson, Mr. Thais noticed trends among his students according to these three categories:

1. There were students with some experience playing musical instruments
2. There were students with a strong personal interest in music
3. There were students with no previous experience playing instrument and/or little overall interest in music

NEURODIVERGENT LEARNERS

The students in the first two categories—those with an existing experiential knowledge base and/or a personal interest in music—seemed to grasp the writing assignment more quickly than those without the experience and interest. These students' initial writing abilities varied considerably, but their prior knowledge was a clear motivator when taking notes, researching at the library, making edits, and completing the drafts.

Building upon existing knowledge to learn new things is one important way that neuroplasticity works. Neurologist Judy Willis defines neuroplasticity as the "selective organizing of connections between neurons" (Bernard, 2010). Neurons send information throughout the brain. When people practice an activity repeatedly (such as playing an instrument) or in accessing a long-term stored memory (such as a concert they attended or their favorite song), their neural connections, called synapses, are strengthened.

These neural connections become thicker and these students who are neurodivergent are those whose neurological development is considered "atypical" or "unique" by the general population. For example, students with attention deficit hyperactivity disorder (ADHD), autism, dyslexia, developmental coordination disorder (DCD), Tourette syndrome, and other kinds of disabilities are classified as neurodivergent.

Another similar term is "atypical development." When using the term "atypically developing," though, practitioners usually refer to students who have developmental behaviors outside the norm for children their age, such as speech delay, low muscle tone, or difficulty completing basic activities of daily living.

In a school setting, students who are neurodivergent or atypically developing usually have formalized support through an IEP (Individualized Educational Program). These students may participate in the general education setting with specialized instruction and services (inclusion) or learn in a full-time special education setting.

In the above example of Mr. Thais' seventh-grade English class, there are a few students with IEPs whose educational needs are met within this inclusion setting. One of them, Marcy, has Developmental Coordination Disorder (DCD). This means that Marcy has some fine and major motor skills challenges in her physical movements.

For example, both handwriting and typing are difficult for Marcy. She can do them, but this task needs extra time in class. To help her during class, Marcy often uses a dictation-software technology to help her express her thoughts during the brainstorming and initial drafting stages of the writing process.

Thus, Marcy is a neurodivergent learner. What is interesting to note is that neuroplasticity of her brain benefits Marcy. Based on class observations, this means that Marcy can draw upon her existing knowledge and experiences to strengthen the neural networks that make recall quicker and clearer.

The idea of neuroplasticity also includes the brain's ability to "repurpose" existing synapses and make new connections. Students who are neurodivergent and students who are atypically developing must learn to work around the challenges of their disabilities to train their brains to achieve their desired result. To improve Marcy's brain to learn and enhance her verbal processing through this dictation software helps to organize her ideas before she writes or types her essay. These neural synapses are strengthen and help March to recall faster and clearer. Thus in this case, learning is enhanced for her in this scenario.

STRATEGIES TO SUPPORT NEURODIVERGENT LEARNERS IN THE CLASSROOM

Neurodiversity is something to be celebrated in the classroom today, especially with advanced software technology. To be a teacher of neurodivergent students is to have students with unique, insightful—and yes, sometimes challenging—learning profiles. Some students on the autism spectrum, for example, can present with a high intensity and focus for preferred activities in comparison to normal students. This may make them a wonderful team member during a project-based learning activity involving their preferred subject area. Some students with ADHD may offer great enthusiasm during a brainstorming session. Neurodivergent learners may offer nonlinear thinking, a willingness to question or challenge assumptions, or exceptional recall and can make a great contribution to team-supported learning scenarios in a given classroom setting under the instructor's guidance and support.

NEUROPLASTICITY AND THE WHOLE CHILD APPROACH TO TEACHING

Variability in brain development is normal. Creating an inclusive classroom environment is powerful for neurodiverse and neurotypical students to learn to work with each other's strengths. Teachers can use the following strategies to support neurodivergent learners. The basic assumption by teachers can be based on the notion that each student is quite competent in learning new things in the classroom setting. While some students may have difficulties with verbal communication or present physical or social cues that distract from their intellectual and emotional abilities, these should be noted and can be based on external observations by the instructor. It's important for educators to presume competence and to interact with students with respect and honor, believing that they are paying attention and listening.

Next, identify and leverage strengths of each of your special-needs students as each may display wonderful strengths, as do all students. It may take time and intentional work to determine here. The most important thing to take away here is to create an inclusive classroom environment that is powerful for neurodiverse and neurotypical students to learn to work with each other's strengths, especially with the strengths of neurodivergent students as it is worth the effort.

Questionnaires, informational interviews with parents, observation of peer interactions, and other methods can be used to learn what students excel at, what they love, and what motivates them. Whenever possible, those strengths should be leveraged in the classroom.

Managing challenges with accommodations for students with disabilities also have challenges that make learning more difficult in some ways. Support plans for neurodivergent students should include accommodations that work. For example, if a student with dyslexia struggles to read word problems in math class, a read-aloud accommodation should be in place.

Nowadays, there are computer programs, cell phone apps, and innovative strategies that can be tailored to an individual's strengths. Students should have access to literary and math content in whatever forms work for them, while they continue to practice skills and strategies that help them manage the challenges related to their disabilities. In other words, a child shouldn't be prevented from learning the story of Macbeth because he can't decode Shakespearean English.

By creating a sensory-friendly classroom, noise-cancelling headphones, sunglasses, fidget toys, flexible seating, mild lighting, and a movement-oriented schedule helps students who may be sensory-sensitive. It can also help to reduce visual distractions, unnecessary noise, strong smells, and poor ventilation in the classroom. For instructors in the modern-day classrooms, it is important to create a comfortable learning environment for all students in order to create an atmosphere that enhances the natural "flow" of learning new and challenging lessons for all students.

HOW DOES OUR BRAIN LEARN?

The brain is always changing. Relationships, experiences, and environment all play a role in the brain's growth and adaptation. For educators, each lesson helps shape students' brains. To identify the best instructional strategies and learning experiences for students, educators must start with an understanding of how the brain receives new information and converts it into learning (McTighe & Willis, 2019).

A stimulus is presented, such as a picture of the Egyptian pyramids in history class or the sound of the middle C note in music class.

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The brain's sensory system receives this information, or data. It does not judge the data as being important, interesting, frightening, or delightful. Before the data leaves the sensory system, the reticular activating system (RAS) acts as a filter between the sensory system and the brain's processing system.

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The RAS does judge the data and helps people attend to what is important, especially when the data from the sensory system suggests that something is new, different, changed, or unpredictable.

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If the RAS determines the data is important enough to be transmitted to the brain's processing system, it will send the signal. When this happens, the data about the pyramids or middle C will go to the brain's processing system.

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On its way to the brain's processing system, the data gets filtered through the amygdala section of the brain then, if all is clear, it goes to the upper brain (prefrontal cortex), where memory is constructed and neural networks of executive functions guide behavior with reflective (rather than reactive) choices.

For most of us, the brain takes in new information through the following process: Stimulus Presented Data Received Data Filtered by RAS Data Judged Data Transmitted Data Filtered by Amygdala (Source: McTighe & Willis, 2019)

EIGHT STRATEGIES TO ENHANCE LEARNING IN CLASSROOMS

1. Teaching malleable intelligence and growth mindset neuroplasticity is inextricably linked with the concept of malleable intelligence. Malleable intelligence simply means that intelligence is not static; it can increase or decrease over time as a result of different factors, such as practice and effort.

   Neuroplasticity means the structure and function of the brain can change with time and experience. The brain grows and adapts as neural networks are strengthened. A growth mindset is believing that malleable intelligence and neuroplasticity are true. Students who hold a growth mindset believe that their hard work will make a difference. These students also show higher levels of academic achievement, resiliency, and self-regulation (Blackwell, Trzesniewski, & Dweck, 2007).

   When students are explicitly taught that their intelligence can improve through study and practice, they do better in school. Multiple studies confirm the positive impact of growth mindset on student motivation and academic achievement. One such study comes from a 2007 Stanford University report. Researchers Blackwell, Trzesniewski, and Dweck demonstrated that students who were taught that intelligence is expandable had positive changes in classroom motivation and increased grades in their mathematics class (Blackwell, Trzesniewski, & Dweck, 2007).

To help students adopt a growth mindset, teachers can provide explicit instruction on the cognitive processes that occur as they learn new information and can make growth mindset lessons a big deal! Students will notice what is important and begin to internalize the mindset. Teaching them how to track progress on their personal and academic goals over the course of the school year will help them tangibly see their growth.

2. Repetition "Practice makes permanent," as the neuroscientists say. Practicing an activity and reviewing material in multiple ways helps the brain build stronger and thicker neural networks. Neural networks are groups of neurons that fire together, creating electrochemical pathways (Bernard, 2010). The more one practices an activity or accesses a memory, the stronger the connection. Over time, if the practice stops, the brain eventually eliminates the connections.

   Ideally, teachers should aim to provide students with multiple opportunities to practice their current learning skill through multiple modalities. For example, a foreign language teacher might introduce a new unit's key vocabulary words in class and have the students practice the vocabulary for the next two weeks with these activities:

   - Writing the word and drawing a picture that demonstrates its meaning
   - Playing charades in small groups to act out the meaning of the new words
   - Using the new vocabulary words in written sentences
   - Playing a whole-class listening game where the students make tally marks for each time the teacher says one of the words throughout a lesson
   - Writing each word five times
   - Conversation pairs practicing using the words in short stories,

3. Building trust and establishing an inviting classroom culture is integral part of creating an inclusive classroom experience. When students feel safe, accepted, and heard in their classrooms, they are more available for learning. "Serotonin is associated with a feeling of well-being and is a powerful modulator of neuroplasticity," writes neuroscience education professor Martha Burns. Accordingly, it is essential in building trust with students to help them navigate the lessons taught, and to make each student feel confident in the educational process (Burns, 2019).

4. Using Mnemonic Devices is ideal. Some students naturally discover techniques and tools that help them remember new content. Most students, however, need explicit memory training to learn how to memorize and recall important information. A mnemonic device is a learning technique that helps with information retention or retrieval (remembering) (Literary Terms, n.d.).

   One common mnemonic is the acronym, PEMDAS, which stands for "Please Excuse My Dear Aunt Sally." The capital letters in this acronym reflect the order of operations for performing multistep arithmetic problems: Parenthesis, Exponents, Multiplication, Division, Addition, Subtraction. A mnemonic device can be an acronym or any other tool that helps a student remember. This technique may be helpful for teachers to ask their students to volunteer and show others how they remember new or challenging information. One student's memory recall technique to remember the names and order of planets might turn on a light bulb for another student who hasn't yet mastered this memorization skill. Using mnemonic devices and other memory-training activities enhances connectivity in the part of the brain responsible for higher-order cognitive thinking.

5. Activating prior knowledge building upon existing neural pathways makes it easier for students to integrate new information. Enhancing prior knowledge may take many forms, depending on the age and abilities of students.

   The following are a few strategies for piquing students' interests and tapping into their existing knowledge. Building upon existing neural pathways makes it easier for students to integrate new information. and experiences related to the content.
   - Show picture books to share visual images related to a new content area.
   - Complete a class brainstorm web.
   - Ask students to write a personal reflection or journal entry on the new topic.
   - Incorporate interdisciplinary learning (e.g., a warm-up question in math class that requires students to use close reading skills to mark up the word problem).
   - Write (or tweak) curriculum to make content personally relevant to students' lives.

6. Integrating the arts can be stimulating to our sensory systems in our brain. While experiencing this, the art work enhances the connectivity of the brain—even when it is at rest. Creating or participating in art also boosts one's memory, empathy, attention, and focus (Ackerman, 2020).
   Incorporating music, dance, drama, creative writing, painting, drawing, etc. into classroom routines and within the curriculum will help students encode new learning into long-term memory. Ways to do this include:
   - Making the classroom environment both print and image rich, but taking care not to make the environment over stimulating
   - Using songs to teach multiplication facts or the days of the week
   - Sharing or posting pictures of detailed period pieces when studying history or literature

- Asking students to research and find appropriate images that communicate the tone, style, or theme of a poem

7. Incorporating Movement Exercise has been shown to enhance neuroplasticity and improve learning (Lin, Tsai, & Kuo, 2018). While it is not likely feasible or appropriate to incorporate extended exercise routines into academic classes, it is possible to incorporate short movement breaks and encourage whole-body learning.

   In whole-body learning, students use physical activity to explore and learn. Students learn by doing rather than through passive observation. Multisensory reading programs, experiential learning (e.g., field trips, learning outside), and hands-on learning activities such as math manipulatives and science experiments are a few examples of whole-body learning.

8. Challenging boredom is one reason new information may not
   make it from the sensory intake system to the brain's processing system. If students are not appropriately challenged, they are more likely to zone out during class and focus on other stimuli of greater personal interest. Teachers can promote strengthened neural networks by providing appropriate challenges (Ackerman, 2020).

   To do this well, educators must have a strong understanding of students' academic strengths and weaknesses as well as their interests. Ideally, extension activities and problem sets will be meaningful, relevant, and enticing challenges.

9. Several other activities are thought to enhance neuroplasticity and aid with learning and memory. Promising research suggests that dancing, traveling, playing a musical instrument, learning a new language, reading fiction, getting adequate sleep, and practicing intermittent fasting

promote the brain's plasticity. Teachers may consider teaching lessons on the critical importance of sleep to their students, especially if they teach adolescents, who often prefer to stay up late and have difficulty waking in the morning.

MOVING FORWARD TOWARD A BRIGHT AND HAPPY FUTURE FOR LEARNING

The human brain is truly remarkable for all of us. With its 100 billion neuron cells, the brain receives and processes an enormous amount of information almost instantaneously, paying attention to what's important and disregarding what isn't (Herculano-Houzel, 2009). The enormous circuity of neurons integrates new information, such as nineteenth-century English poetry, into the complex and orderly networks that are already in place.

Teachers who understand how to tap into the wiring of their students' brains are at a huge advantage in helping their students understand and remember content. An English teacher working on identifying imagery in Alfred Lord Tennyson poems with her students may first invite them to gather spring flowers from the school's garden, share a memory of playing in the rain, or invite them to paint an abstract picture of the "colors of battle."

Students are constantly trying to organize the ceaseless flow of information that comes their way. When they are able to connect new learning to existing knowledge, experiences, feelings, and relationships, they are far more likely to encode and permanently store the new information in their brain. Moving forward in an era of whole child education, leaders recognize that school is not just for accomplishing academic gains. Rather, a full and excellent education addresses the physical, social, emotional, civic, and spiritual aims of the student. To do this, educators must respond to the dynamic nature of their students' minds through intentional teaching methods.

IN CONCLUSION

Although the concept of "flow" has been a part of current research, there is still more to learn as of now. While the the policies implemented by each educational institution may differ, the cultural dynamics of learning can be incorporated here as well.

The ideas contained in the Japanese "ikigari" (生き甲斐) to the Hawaiian phrase, "ho'onalu" (going with the flow) are remarkable ideological and philosophical concepts for all educators to take note when incorporating these new learning modalities for brain enhanced learning for our students.

Let us continue to explore these together in creating a dynamic environment for our students in this modern era of high technological advancements by developing new learning skills in all curriculums around the world today. By doing so, this will certainly elevate and brighten the learning experiences of all students as they stay focused in this happy and energetic "flow" state in the mind.

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