Why Holistic Learning is important: What the research shows….

- Hormones and neurotransmitters provide a constant communication between the mind and body so that our mental state and our physical state are inextricably linked.
- The more sensory stimulation we receive, the more neural connections are formed, improving the organisation and functional activity of the brain and helping to form long lasting memories, which can be recalled easily when necessary**.**
- Physical movement increases the oxygenation of the brain and the production of BDNF (Brain-Derived Neurotrophic Factor – essential for neural development) for improved cognitive processing, memory, and recall.
- Physical exercise strengthens the cerebellum which is directly linked to the parts of the brain involved in memory, attention, cognitive processing, and problem-solving.
- We use more parts of our brain and create a "mental web" of information when we look for or discover answers for ourselves rather than being given information, helping us to store, retrieve, and use what we have learnt more effectively.
- *"Neurons that are fired together are wired together"* – when different experiences occur together, the neural pathways for these are physically connected in our brain, for example we may connect a particular emotion with a particular situation.
- The brain doesn't distinguish between real or imagined activity so just by imagining or visualising doing something we can create the same physical changes in the brain as if we were doing it for real.
- Emotions help us to perceive an experience or information as meaningful so that the brain focuses on it, organises it, and remembers it. Positive emotions help us to form strong memories which we can easily retrieve and put into practice.

- The limbic system deals with both emotions and memory. When we experience a positive emotional state such as excitement, joy or pleasure, the neural signals from the heart to the brain increase our ability to think, remember, learn, reason, and make effective decisions (conversely, when we experience stress or negative emotions such as anger, fear or guilt, our heart signals reinforce these negative emotions and inhibit our cognitive functioning).

- Our brains work best when we are socially connected and have meaningful interactions with others. The reward centre of the brain is activated and gives us more pleasure when we do something to help others than when we do or receive something for ourselves.

- When we experience social pain such as rejection, our brain registers it as real pain and it interferes with our ability to learn. When we feel understood and connected to others, we have greater feelings of wellbeing and lower stress, which enables us to learn better.

- When we play and have fun our brain releases dopamine (which makes us feel good, gives us more energy, and improves our memory, attention and motivation), endorphins (which aid learning by making us happier and more relaxed), and BDFN, which improves our perception, reasoning, problem solving and memory.

- The cerebral cortex (responsible for thinking, perceiving, processing and problem-solving) is more highly developed when our senses are stimulated and we have opportunities to play.

- We have evolved to function best in nature-rich surroundings and being connected to nature improves cognitive function, memory, creativity and problem-solving ability.

- Our brain is an electrochemical, neuronal network which observes, encodes, and identifies perceived patterns. These processes work better when we identify patterns in our lives and seek meaning in them.

- Activities which take us outside our own conscious processes, such as meditation and mindfulness have a positive effect on the brain including increasing the amount of grey matter and enhancing the connectivity between different brain regions.

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