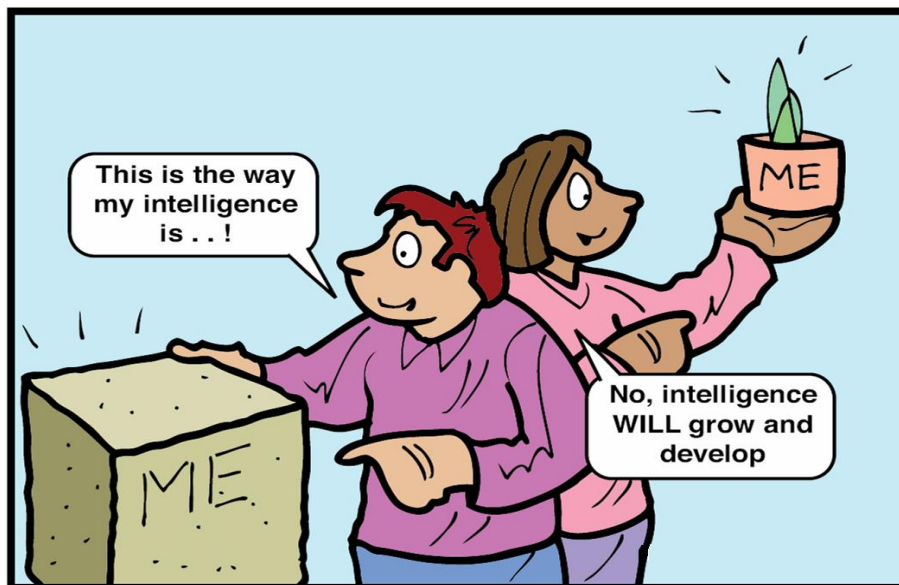


Growing Learning Ability

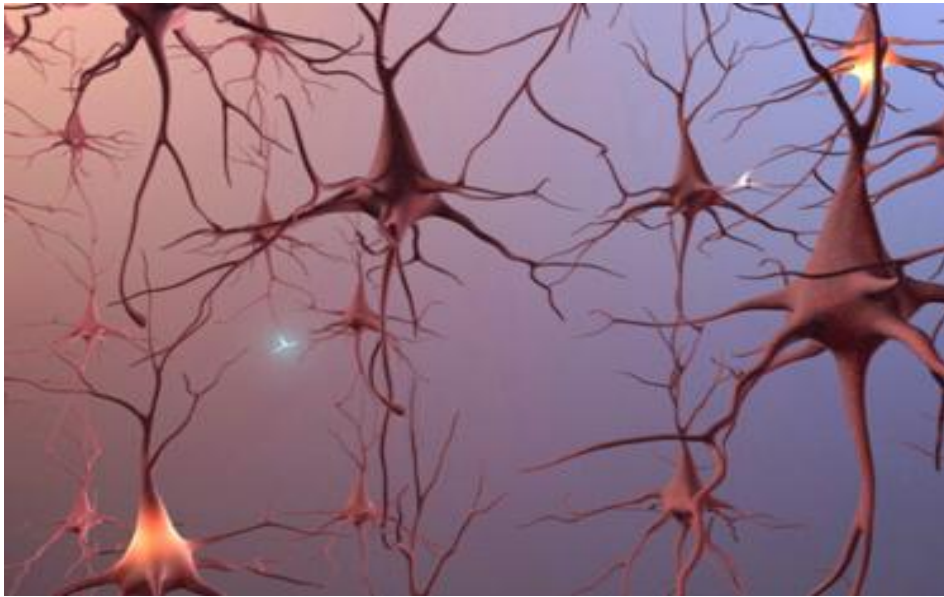
There are two ways of viewing human intelligence and abilities. People tend to have either a growth mindset or a fixed mindset. When children have a growth mindset they tend not to avoid challenge. As adults, we can encourage a growth mindset through the type of feedback we offer to children.



In a fixed mindset students believe their basic abilities, their intelligence, their talents, are just fixed traits. They have a certain amount and that's that, and then their goal becomes to look smart all the time and never look dumb. In a growth mindset students understand that their talents and abilities can be developed through effort, good teaching and persistence. They don't necessarily think everyone's the same or anyone can be Einstein, but they believe everyone can get smarter if they work at it." (Dweck, 2006)

People with a fixed mindset believe that there is not much they can do about their abilities and intelligence. They think it is a *fixed* quantity, for example, they're clever or they're not, they can do maths or they can't. Other people with a growth mindset believe that they can constantly change and improve. They think that their current spread of abilities and talents is not fixed, but will develop with effort and work

The Nerve Cell Forest



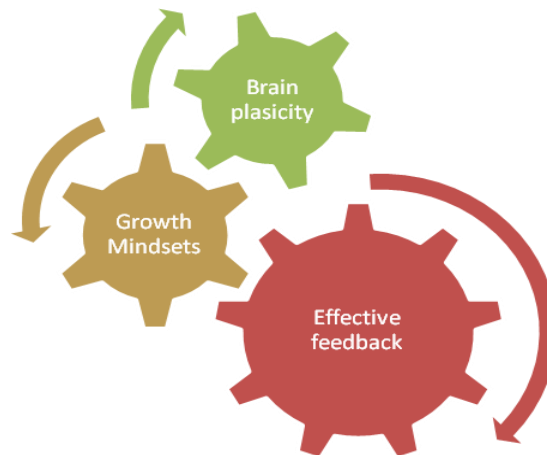
“Intellectual development is not so much the natural unfolding of intelligence, but rather the formation of new connections brought about through effort and learning” (Dweck)

So does it make sense to have a growth mindset? Research into brain physiology indicates that indeed the brain can change and develop over time. It used to be assumed that the pattern of nerve cells in the brain was static once it had been formed. We now know that nerve cells actually grow in response to new learning and practice at particular tasks. Putting effort into certain activities causes corresponding areas of the brain to become active. Nerve cells in this area will grow together to make activity in this area easier and more fluid. This is why skills, for example riding a bike, learning to drive, that at first feel awkward, eventually feel ‘like second nature’. Studies have been carried out using PET scans to compare the brains of London taxi drivers with those of London bus drivers. Over time, the area of the brain involved in navigation becomes visibly thicker in the cab drivers due to the greater navigational demands of their job.

Brains can change and develop. Abilities and intelligence can grow. Does knowing this make any difference to pupils in the classroom? It turns out that it does....

When children (and people in general) believe that how able we are is ‘fixed’ it can deter them from challenging themselves. If they perceive themselves as being ‘not good’ at something, they may avoid it as much as possible. Effort in that area is assumed to be pointless, other than to highlight their weaknesses. Even in areas that are viewed as strengths, children with fixed mindsets may play it safe so as not to risk failure. If ability is seen as fixed then failure can be viewed as evidence that ability is poor.

Children with a growth mindset know that they can improve through effort. They do not have to fear that outcomes of new challenges will reveal permanent flaws. Difficult tasks provide opportunities to actually become more intelligent and able.



Further research shows that the sort of feedback we give to pupils can foster either fixed or growth mindsets. When we praise effort we are encouraging a growth mindset (it's what you *do* that counts) When we praise ability we are inadvertently supporting a fixed mindset, (it's what you *already are* that counts)

These studies show a range of outcomes when children are praised either for effort (fostering growth mindset) or ability (fostering fixed mindset). In both groups children were first given fairly simple puzzles. One group was praised for effort (“Well done, you must have tried hard”) while the other group was praised for ability (“Well done, you must be really smart”). Next the two groups moved on to similar but far more demanding tasks and the outcomes were noted.

	Praised for <i>effort</i>	Praised for <i>ability</i>
goals	90% of the group created learning goals	66% of the group created performance goals
enjoyment	continued	decreased
persistence	continued	decreased
performance	improved	declined
lied about scores	one individual	40%

Mueller and Dweck, 1998

Being of fixed mindset can lead to preoccupation with conserving a specific image, avoiding failure and challenge. Being of growth mindset removes the fear of challenge as intelligence can always increase. For the children praised for effort (fostering growth mindset), more challenging work continues to offer opportunities to try hard and to learn new strategies. For children praised for ability (fostering fixed mindset), difficult challenges represented potential loss of previous admiration. This links in with why these children more much more likely to lie about how they had done in the challenges!