Lesson 1 - SEEN

Full Transcript

Slide 1 - 00:03

Hello, my name is Louise Aukland and I'm here to talk to you about SEEN Oxford, an exciting new curriculum project that your school has decided to take part in.

Slide 1 - 00:14

So, SEEN Oxford is a project run by the University of Oxford and funded by Kindred squared. Only a few schools in the country are involved in this project and your school is one of them.

Slide 1 - 00:25

We hope to inform the future learning of young people across the country with your help and each lesson has a recording of the main activities and learning points, this is the first one, together with a student word file where you can write your thoughts and responses.

Slide 1 - 00:40

It also has the links to the video clips that I'll be using in this presentation so if you want to watch them again separately yourselves you will have those too.

Slide 1 - 00:50

So, what's it all about? Well before we can do that, we need to find out a little bit more about what you already know.

Slide 2 - 00:58

And so, we're asking you to complete a pre-lesson quiz and it would be really helpful if, this isn't a test, so if you don't know the answer just simply tick the box ‘I don't know’. There's no problem with doing that and so you may want to pause the presentation here and go to your student instruction booklet where you'll find under number two a link to the pre-lesson quiz so do that now. Pause this presentation and go and complete the pre-lesson quiz.

Slide 3 - 01:41

So, lesson one is about brain development in the early years.

Slide 4 - 01:46

And there are three lesson objectives for today's session. First of all, to just describe the process of brain development. Number two, to explain the importance of genetics and the environment in brain development and number three to define neuroplasticity.

Slide 5 - 02:04

So, if we were in a class, I'd ask you to put your hands up if, however, we're not in class, so just bring to mind and have a think about do you have a sibling that's aged not to five years. You'd probably know that one but if not, do you have regular contact with a child who is aged between naught and five, so that's a baby up to preschool so before going to school. Maybe a cousin or a friend or a neighbour, and so keep that child or baby in mind when you have a think about the following question.

Slide 6 - 02:36

What can babies do? Now, the space on your student leaflet to fill in your ideas here and if you need some help, you can try watching one of the two babies here. So, the first one is Laurie who's three days old in this clip here. Or you can watch Iris who's seven weeks old in this clip here. Now I'm not going to show those right now, instead you may want to pause this presentation and find those two links on your student booklet at number three. Watch those clips and have a think about what can babies do and there's some space for you to put your ideas. So, pause it while you complete that activity. Just a minute or so. Not an essay.

Slide 7 - 03:27

So, let's see what you already know. You've had some thinking about it and now it's time to have a go at a true or false quiz. Now in the student book you've got those true false questions, or if you prefer you can click the link in the student booklet to take you through to an online quiz that's run by UNICEF. They're the same questions so again pause this slide here and go and have a go at this true false quiz, just a few questions.

Slide 8 - 04:02

So, let's mark our work and see how we did on that one. The first question, a baby cannot see or hear at birth. That's false, babies can see and hear from birth and many babies actually remember songs they heard repeatedly while still in the womb.

Slide 8 - 04:18

Second question asks you before your child speaks or a baby speaks the only way he she communicates is by crying. Well, that's false. Babies express themselves in many ways from laughing and smiling to show enjoyment to crying and wiggling to show discomfort. So they have lots of way of communicating with the adults around them.

Slide 8 - 04:41

Now this one, you should talk to your child, don't worry I'm not expecting you to have a child, this was written for parents by UNICEF, even before the child can speak. So that one's actually true. Babies enjoy making new sounds such as squeals and laughs and they respond to adults that do that to them or to other people around them. They learn how to communicate with you even before they can say any words.

Slide 8 - 05:07

Next the child drops things just to annoy you now this is false. Children are like little scientists they want to find out how they can affect people and things around them. So, they're not doing it to annoy you, they're doing it to learn.

Slide 8 - 05:20

Babies learn better to try things out and copying others rather than being told what to do. This one is true, this is exactly how children and babies learn. They learn by playing trying things out observing and copying what others do.

Slide 8 - 05:36

And the brain develops most rapidly when your child first enters school. That's actually false. The brain develops most rapidly before birth, so when they're still in the womb and during the first two years of life.

Slide 9 - 05:52

And in fact, this slide covers a few of the other exciting things that babies can do. So newborn babies already have well-developed senses and prefer their own mother's voice, face and smell over those of strangers. They can tell the difference between them. They're born with certain reflexes including the dancing reflex so when supported on a surface they'll make little stepping motions with their feet. And one month old babies are actually better at distinguishing between sounds in foreign languages compared to adults. So babies of english-speaking parents can actually tell the difference between sounds in Hindi that their own parents won't seem to know the difference between. So, in many ways their brains are better at determining sounds than their parents. Six-month-old babies can distinguish between a wider range of faces than their parents can, so they'd be able to distinguish or tell the difference between faces of individual monkeys when adults would look at them and just think they all look the same.

Slide 10 - 06:55

So, the main part of this lesson is about brain development. We're going to learn a little bit more about how the brain develops.

Slide 11 - 07:06

So, the brain is actually made up of millions and billions of interconnected neurons. So, neurons you may recall are a type of cell, a type of specialized cell, that is found in the brain. Both the genetics, so the DNA that's passed down from the mum and dad, the biological mum and dad, and the environment or the surroundings, the experiences of an individual, have an impact to play in brain development. New experiences can lead to new neural circuits being formed or new connections between neurons. And circuits can be strengthened and weakened by those experiences that an individual has in their life.

Slide 12 - 7:50

So, we're going to watch a little bit of a video clip that's going to explain that again in a slightly different way.

**Experience Builds Brain Architecture.**

A child's experiences during the earliest years of life have a lasting impact on the architecture of the developing brain.

Genes provide the basic blueprint, but experiences shape the process that determines whether a child's brain will provide a strong or weak foundation for all future learning, behaviour, and health.

During this important period of brain development, billions of brain cells called neurons send electrical signals to communicate with each other.

These connections form circuits that become the basic foundation of brain architecture.

Circuits and connections proliferate at a rapid pace and are reinforced through repeated use.

Our experiences and environment dictate which circuits and connections get more use.

Connections that are used more grow stronger and more permanent. Meanwhile, connections that are used less fade away through a normal process called pruning.

Well-used circuits create lightning-fast pathways for neural signals to travel across regions of the brain.

Simple circuits form first, providing a foundation for more complex circuits to build on later.

Through this process, neurons form strong circuits and connections for emotions, motor skills, behavioural control, logic, language, and memory during the early critical period of development.

With repeated use, these circuits become more efficient and connect to other areas of the brain more rapidly.

While they originate in specific areas of the brain, the circuits are interconnected. You can't have one type of skill without the others to support it.

Like building a house, everything is connected and what comes first forms a foundation for all that comes later.

Slide 12 - 10:03

Okay so there we found out that experiences really do impact on brain architecture or brain development early in life.

Slide 13 - 10:13

And what I'm asking you to do now is to complete some questions and you may have been given worksheet one by your teacher or alternatively if you go to the student instruction sheet you will see some questions on the sheet that relate to the video you've just watched. If you'd like to watch the video again the link is also on the student instruction sheet. So perhaps pause this presentation now and spend some time trying to complete those questions before coming back again pressing play and then marking your work. It may be helpful to market in a different colour.

Slide 14 - 10:50

So, these are the questions a, b, c, d, e - five questions for you that you are asked to complete, let's have a look at the answers.

Slide 15 - 11:00

So, the first question which two factors influence brain development so we've got our genes or the genetics or you may have said the DNA inherited from the parents, the biological parents, and experiences or the environment. What are brain cells called? Well, that's neurons, so that was the specialized cell that we talked about that can be found in the brain. So c, what causes the strengthening of connections and circuits? So there we want something about repetition or using the circuit again and again. So repeated use experiences and environment decides which are used more. So that depends on where you are and what you experience in life. So, what happens to connections are not that are not used? So, this is d. They fade away through a process called pruning. So, pruning would be a key term that you may want to put into this sentence and if you haven't used it already perhaps add it now.

Slide 15 - 12:05

So, what type of circuits are formed in the early years? So, these are simple circuits or the foundations of brain development. So, the video compared it to building a house and that you must lay the foundations first and then build the house on top for that strong foundation. You may have specifically mentioned the following circuits: the visual or emotional circuits, motor skills, behavioural control, logic and memory so those were the ones mentioned by the video.

Slide 16 - 12:41

So, we're going to move on now and look at our third objective for today's session that was what is meant by the term neuroplasticity. Let's define it and again we have another video to watch here so you can either click the clip the link on the student sheet or you can watch it now as I play it through this presentation.

**Neuroplasticity Video**

Not so long ago, many scientists believed that the brain did not change after childhood. That it was hard-wired and fixed by the time we became adults but recent advances in only the last decade now tell us that this is simply not true.

The brain can and does change throughout our lives: it is adaptable, like plastic hence neuroscientists call this 'neuroplasticity'. How does neuroplasticity work?

If you think of your brain as a dynamic, connected power grid, there are billions of pathways, or roads, lighting up every time you think, feel or do something.

Some of these roads are well travelled: these are our habits, our established ways of thinking, feeling and doing.

Every time we think in a certain way, practice a particular task or feel a specific emotion, we strengthen this road.

It becomes easier for our brains to travel this pathway.

Say we think about something differently, learn a new task, or choose a different emotion we start carving out a new road - if we keep travelling that road our brains begin to use this pathway more, and this new way of thinking, feeling, or doing becomes second nature.

The old pathway gets used less and less and weakens. This process of rewiring your brain by forming new connections and weakening old ones is neuroplasticity in action.

The good news is that we all have the ability to learn and change, by rewiring our brains.

If you have ever changed a bad habit or thought about something differently you have carved a new pathway in your brain and experienced neuroplasticity first-hand.

With repeated and directed attention towards your desired change you can rewire your brain.

Slide 16 - 15:15

Okay so there was our description of neuroplasticity and I'm going to ask you now to pause this video again and go back to your student instruction sheet and see if you can write a definition of neuroplasticity or if not just an explanation of what you think it is before coming back again and pressing play and we'll check what you've learned.

Slide 17 - 15:45

Okay so this is the last part of this lesson and it's about what have we learned today and we've learnt quite a few new words and so we're going to start by unscrambling the words one, two, three, four, five, six and then see if we can match them to their definition a, b, c, d, e, f. So, in a moment I'd like you to pause the film you've got these both on your instruction booklet and spend some time trying to unscramble one to six and turn them into keywords for today's lesson and then match them to the best definition out of a, b, c, d, e or f. So, if you'd like to pause this and go away and try that task before coming back and checking your answers.

Slide 18 - 16:38

So, time to check our answers. We've got brain - the organ of the body responsible for coordinating responses including thoughts, emotions and behaviours. A neuron - a specialized cell found in the brain. Connections - the junction between two cells it forms when new experiences occur. That junction between two cells is often called a synapse. Neuroplasticity – e, the ability of the brain structure to change and grow during a person's life. You might want to compare that back to the definition you came up with after watching the Sentis video. Genes – f, unit of inheritance passed on from parents to offspring, determine some characteristics of the offspring. And environment, the experiences, relationships and surroundings that affect development.

Slide 18 -17:34

Now that brings us to the end of this lesson and I look forward to seeing you again when you complete lesson two. Thank you very much, goodbye.