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Extra information for Educators and Groups

CAPSID – A model for the transmission of ideas

This resource aims to explain a key concept within the exhibition: that there are similarities between how a virus spreads and how an idea can spread. It also encourages you to explore the analogy further with your group by applying the stages and structure of a virus to journey of an idea.

Think of a virus as an idea or a message that wants to spread itself ever further within the world. What you would see if you looked at a virus through a microscope is the outer shell of the virus, or what is known as the viral envelope. This is the exterior of the virus, which is like a three-layered Russian doll.

A capsid is the protein shell located inside this viral envelope. The capsid contains the viral DNA – the genetic material needed for creating a new version of that virus. Using our analogy, the capsid contains the idea.

The function of the capsid is to protect the viral DNA (the idea) from attack by the host cell (conflicting ideas) during transcription and replication (making new versions of itself) as it travels through the cell to the centre (known as the nucleus).

The space between the cell membrane and the nucleus is known as the cytoplasm. For our purposes the cytoplasm is the place where the idea tries to survive. The cytoplasm is a hostile place for viruses and any foreign genetic material. This is where the idea is challenged and debated in the context of other ideas that may be ‘better’ than it. The cell is programmed to detect such foreign material and kill it. This process is known as the innate sensing mechanism.

In the case of our analogy between viruses and ideas having similar methods this might mean that the infecting idea has to withstand attack from the native idea it is invading. If the infecting idea is to succeed it has to trick the native idea into accepting it, thus letting it take hold and potentially killing the native idea in the process.

STAGES

The stages a virus follows are:

Attachment

Entry

Reverse Transcription

Cloaking (co-factors)

Uncoating

Replication

Export

Packaging

Budding

Please watch the animated film when you arrive which features an animation of the stages. You can also see a diagram of this in the supporting JPEG: The Life Cycle of HIV.

Case Study 1 – First Division Football Club

How do you become a football fan? Why do you support one team rather than another? What are the component parts of being a fan? How does being a fan of the same club pass down from one generation to the next? Are there changes or mutations that happen between different generations of the same club?

If football fandom were a virus being passed between humans what are the stages of its transmission?

STAGES

Attachment: Team Colours

Entry: Relationship to geographical place

Reverse Transcription: Football trading cards

Cloaking (co-factors): Mascot

Uncoating: Family history of club support

Replication: Attending a match or watching on TV

Export: Chanting

Packaging: Logo

Budding: Football kit

In the case of a First Division Football Club the following might be considered:

The Capsid: The current incarnation of the club team

The Host Cell: The stadium

The Cytoplasm: The opposition (team and supporters)

The Nucleus: The football match

Case Study 2 – Paisley Pattern

Paisley is a teardrop or leaf-shaped pattern, which is commonly used on fabrics in clothing or upholstery. The pattern is thought to have originated in Mesopotamia (modern-day Iraq) or Persia (modern-day Iran) around 1000 years ago. The pattern was carried between cultures along the Silk Road – an ancient transcontinental trading network that stretched from the edge of Europe to China and Africa. During the 17th Century the pattern travelled to Europe from India by boat via the East India Company, which imported Kashmir shawls (cashmere) that displayed the pattern. As demand for the pattern grew in Europe it was printed and woven there instead of being imported.

The Industrial Revolution lead to innovations in the production of the paisley pattern through the use of Jacquard looms – a kind of early, analogue computer in which punch cards associated with different coloured silks were produced to automate the weaving process and speed up production. The town of Paisley in Scotland became the British home for the production and export of these woven patterned shawls and gave its name to the pattern. The Victorian craze for Paisley Shawls saw the pattern mutate over time – stretching to become a new, elongated in shape. Later on in the 1970s there was another revival of the pattern associated with the Hippie movement.

STAGES

Attachment: Exoticism

Entry: Trading routes

Reverse Transcription: Designing new patterns

Cloaking (co-factors): The Industrial Revolution

Uncoating: Translating new design onto grid

Replication: Programming the Jacquard loom

Export: Weaving and printing new fabric

Packaging: Making new garments from fabric

Budding: Wearing shawls

In the case of the Paisley pattern the following might be considered:

The Capsid: Woven or printed shawl / fabric / item of clothing

The Host Cell: A Place in time e.g. Paisley in Victorian era or Kashmir in 17th Century

The Cytoplasm: Fashion

The Nucleus: Empire

Further options for study using this model:

1. Instagram influencer
2. Veganism
3. Political view
4. Christianity / Buddhism / Islam / Judaism / any religion
5. Punch and Judy
6. Nationalism
7. Vaccine denial
8. The Manchester Bee