Nature versus nurture

Lesson 1.5.3 | Concepts and methods

1. Nature

Nature refers to innate or inherited influences, including genetic contributions and biological predispositions. Brain systems and hormones may express such influences. However, observing a biological difference is not automatically evidence of inheritance: experience can affect biological systems too.

2. Nurture

Nurture refers to environmental experience, including socialisation, education, models, reinforcement, associations and life events. Learning can change behaviour and may also be associated with brain change. Nurture is not limited to deliberate teaching.

Nature emphasis	Nurture emphasis
What inherited predisposition may contribute?	What experience or learning may contribute?
What biological constraints or biases may matter?	What consequences, models or opportunities may matter?
What evidence separates inheritance from experience?	What changed following environmental experience?

3. Interaction

Biological characteristics can influence what captures attention or is rewarding; experience then changes opportunities, behaviour and development. Experience can also alter biological structure. Nature and nurture need not be competing complete explanations.

Hassett proposed biologically influenced preferences sculpted by social experience. Hölzel linked an experience-based programme to structural change. Together, these examples challenge a simple opposition between biology and learning.

4. Keep the debates distinct

An individual characteristic may be learned, while a current situational manipulation can involve a biological substance. Nature/nurture concerns origins and development; individual/situational concerns the focus of an explanation.

Hint: Ask whether a study measured physiology, compared natural groups, manipulated experience or directly investigated inheritance. These are different forms of evidence.

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Lesson 1.5.3 | Evidence and interpretation

1. Biological studies

Hassett: male monkeys preferred wheeled toys without explicit human gendered toy teaching, suggesting a possible biological predisposition. Prenatal hormones were not manipulated here; monkey social experience, rank and access remained relevant.

Hölzel: eight weeks of MBSR were associated with changes in regional gray-matter concentration. This supports experience-related plasticity, but self-selection, inactive control and multiple programme components limit causal claims. It did not quantify genetic contribution.

Dement and Kleitman: sleep physiology was linked with dream recall. This supports a biological account of sleep but did not compare inherited influences with learning histories.

2. Learning studies

Study	Evidence relevant to nurture	What remains unresolved
Bandura	Different modelling exposure changed later imitation.	Origins of every child/sex difference; long-term effects.
Fagen	Rewards, shaping and chaining established a new sequence.	Inherited capacity and other factors; no control method.
Saavedra and Silverman	Responses changed during exposure and later imagery/cognitive work.	Initial cause and the effective treatment component.

3. Other studies

Perry manipulated a hormone, not genes; biological treatment is not genetic proof. Baron-Cohen's group differences did not establish inherited causes. Pozzulo's age differences may combine maturation and experience. Andrade changed a task, not genetic attention differences.

Milgram and Piliavin highlight social environments associated with behaviour, but did not partition inherited characteristics and lifelong experience. Use them for qualified social influences rather than an exclusive nurture verdict.

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Lesson 1.5.3 | Evaluation and connections

1. Evaluating a nature emphasis

Contribution: draws attention to biological predispositions, variation and constraints that a purely social account might miss.
Risk: treating a biological association as fixed or genetic can overlook learning, context and change. Sex differences alone cannot identify a hormonal or inherited cause.

2. Evaluating a nurture emphasis

Contribution: identifies experiences and conditions that might be changed, including models and reinforcement.
Risk: learning evidence does not establish that all biology is irrelevant. Small samples, no comparison group or combined treatments can make the source of change uncertain.

3. Evaluating interaction

Interaction can explain why the same experience affects learners differently and why experience leaves biological traces. It is more informative than a forced either/or judgement, but needs evidence about how influences combine. Simply saying "both matter" does not explain a result.

4. Common reasoning errors

"Brain measure = nature": Hölzel measured change after experience.
"Hormone administration = inheritance": Perry did not manipulate genes.
"Sex difference = innate": social histories and other characteristics can differ.
"Age difference = maturation only": experience and testing circumstances also change.
"Treatment worked = original cause known": reducing symptoms does not identify how they began.

5. Writing with evidence

Define and label nature and nurture explicitly. Choose a precise result that supports the relevant influence, then state the methodological boundary. A manipulated experience, natural group comparison and correlation permit different strengths of conclusion.

> Hint: Use the sequence: define the side → identify a study detail → explain the link → qualify what the design cannot establish.

Example: imitation after changed model exposure supports environmental learning. It does not show that all aggression is learned, nor explain the origins of every child difference.