## BIOLOGICAL APPROACH

**Topic 1:** The brain and behaviour

**Key Idea:** There is a correlation between brain structure/activity and human behaviour. A change in one will lead us to expect a change in the other.

| Content | Research | Use in Biological Approach | Links to |
|---|---|---|---|
| **Techniques used to study the brain in relation to behaviour.** | Classic<br>**Fisher et al. (2005)** – fMRI<br><br>**Maguire (2000)** – MRI scan. (Also see localization and neuroplasticity). | Draw out the differences between the MRI scans of brain structure and the fMRI scans of brain activity. | **Human Relationships**: Fisher et al. used fMRI scanning in a small-scale study to investigate brain regions associated with 'being in love'. |
| | Critique/Extension<br>**Bennett and Miller (2010)** – investigation into reliability of fMRI findings | Challenges of reliable fMRI scanning and number of 'false positives'. Interpretation of scans takes experience and skill. | |
| | Recent<br>**Thomas & Baker (2012)** challenges results of MRI studies of training-dependent neuroplasticity. | Use of MRI in training-dependent neuroplasticity research has some problems based mainly on specificity of task, replicability and robustness of design and statistics. | |

### Further resources

*BBC* Radio Discovery series (2007). Interesting summary of brain scanning and ethics of its use.
http://www.bbc.co.uk/programmes/b007mhxl

Sample, I. (21 Nov 2016). Tests raise hopes for radical new therapy for phobias and PTSD. (Article on fMRI decoded neural feedback as treatment for phobias and PTSD.) *The Guardian.*
https://www.theguardian.com/science/2016/nov/21/tests-raise-hopes-for-radical-new-therapy-for-phobias-and-ptsd

BBC Radio Discovery. Brain Scanning.

*TED* talk by Mehdi Ordikhani-Seyedlar (2017). What happens in your brain when you pay attention?
https://www.ted.com/talks/mehdi_ordikhani_seyedlar_what_happens_in_your_brain_when_you_pay_attention