



One way of remembering to use all of the elements we have discussed is to allocate them different colours and use these to check they have all been included.

Introduction to the focus of the paragraph	Red
Evidence	Green
Elaboration and Discussion - supporting one side of the argument	Yellow
Elaboration and Discussion - supporting the other side of the argument	Pink
Conclusions	Blue

Another area where there is concern is the use of neurological evidence in the legal system. Some consider that there could be ethical implications of using neuroscience as evidence in court for explanations of criminal behaviour, such as using PET scans as justification for why they committed murder. This is an issue because there has been a rise in the number of cases using this evidence to potentially gain reduced sentences, such as in the Peter Jordan Chiesa case where he was convicted for the lesser offence of second degree murder for killing 2 of his neighbours, as he had evidence showing damage to his prefrontal cortex, temporal lobes and cerebellum. This highlights the concern that lawyers are using this evidence even though they don't fully understand it, as an excuse for their clients' actions. There is also the worry that juries are being swayed by this evidence because it is scientific, making them believe that it is credible even though this evidence does not fully establish cause and effect as there is no way to know whether these changes occurred before, during or after the crime was committed, as well as the argument that that it does not take away the fact that the criminals did commit a crime which goes against the legal system. Despite this, there is an argument that in the future neuroscience evidence could be used. The authors of the bioethics report concluded that the gradual introduction of neuro-scientific evidence and concepts after they are validated, well understood and interpreted accurately could potentially be highly valuable. This highlights that if research and teaching is implemented in the use of neurological evidence in the legal system, then the ethical implications could be reduced. However overall, in this present day there is a number of ethical implications of the use of this evidence in the legal system and until the teaching and research is being fully applied, then neuroscience should not be used as evidence as explanations of crimes because the risks of it being used incorrectly and as an excuse is too high.

There is concern that the increased research into neuroscience has promoted a rise in neural modification and cognitive enhancers, which has led to a cause for concern for



the side effects and ethical issues of these enhancers. There is worry that because the research into the long term side effects of these drugs is limited. The drug Ritalin has been associated with mental health problems meaning that people are disturbing the system of their brains in ways that has never been done before. This means that there has not been treatments or therapies developed to deal with the potential problems and side effects that these drugs could cause, resulting in the argument that these neural modifiers and cognitive enhancers should not be readily available. However, there is the argument that there has been research into the side effects, such as Battleday (2015) who has reviewed the evidence into modafinil and concluded that it could improve decision making and problem solving as well as that there were few side effect and no addictive qualities. This provides people with the argument that so far in the short term there has been few side effects, so the long term side effects that have yet to surface must also be minimal. Overall, as well as the social implications of wealth that these drugs will cause in the academic world, there is also the potential for harmful effects to occur to people's health in the future, meaning that strict regulations and vast quantities of research needs to take place to ensure that people's safety is maintained and if the side effects are so great then the drugs need to stop being so readily available especially to students whose brains are still developing.