

Physiological psychology flashcard



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Physiological psychology focuses on the relationship between our biological makeup and our behaviour and experiences. This area of psychology can be very convincing. For example we do know that the structure of our nervous system (including our brains) and the action of chemicals can have an effect on our behaviour. Some physiological psychologists take a reductionist argument to answer the above question.

That is, they argue that behaviour and experiences can be explained in terms of brain structure and chemicals. This reductionist argument has led to such psychologists making great discoveries, for example, in the affect of drugs on mood and behaviour. However, other psychologists (including many physiological psychologists) take the view that we cannot explain complex human behaviour and experience just in terms of brain structure and chemicals. There are other psychological variables which need to be considered, for example, how we act alone, compared to how we behave in groups. Maguire

Conclusions:

- * That the structure of the brain changes in response to environmental demand.
- * That the mental map of the city of London is stored in the posteria hippocampi in taxi drivers.
- * That normal activity can induce changes in the structure of the brain and that this has many implications for rehabilitation after brain injury.

Evaluation

The sample is not representative as it only contains 16 males in each group. Further research would need to include females and left-handed individuals.

This study does not have any serious ethical issues. However, the non-taxi drivers probably were unaware that their brain scans were being used, although they had probably signed a general medical disclaimer at the time of scan. But, using a brain scan as a comparison is not really an issue. This was a highly controlled experiment, therefore it is replicable. The results are reliable as the expert analysing the scans did not know which were the taxi driver scans. However, it would be better to conduct a longitudinal study, so that changes to brain structure over time could be traced.

This study does lack validity as it only considers one factor, the volume of the hippocampi, in relation to navigational skills. In reality it is likely that this complex memory skill is governed by many separate areas of the brain.

This study suggests that training can affect brain structures; this has clear implications for the treatment and therapy of brain damaged patients.

Alternatively, it could be argued that these taxi-drivers always had differences in their hippocampi, and that it was this that led them to become taxi drivers. In other, words they were naturally better at navigation, and therefore became taxi-drivers.

Dement W & Kleitman

Conclusion

The authors conclude that this research provides support for the idea that dreams can be studied in an objective way. This then opens up other areas of research e. g. investigating the effects of environmental stimuli, stress and drugs on dreaming.

Evaluation

An obvious weakness of the study is its lack of ecological validity. The situation in which the participants had to sleep was unusual and could have affected their sleep patterns. Also the nature of the method of waking participants may have affected their ability to recall their dream.

A further problem with the study was sample size. The sample size was small and only included 2 females so we could argue that the results were biased towards the dream patterns of men rather than women.

Subsequent studies have found that there are large individual differences in the reports of dreaming during REM.

Subsequent studies have not supported Dement & Kleitman's findings that there is a relationship between eye movements and what the person is dreaming about.

However, the method was very tightly controlled. For example, the researchers were able to control the location, sleeping time and the participants' use of stimulants.

Sperry

Human brains are divided into hemispheres – a left and a right hemisphere. The two hemispheres are joined at their base by commissural fibres. In people with very severe epilepsy, that cannot be controlled by drugs surgeons sometimes cut through these fibres in order to limit the epileptic fit to just one side of the brain.

Roger Sperry was able to take the opportunity of studying patients who had had hemisphere disconnection in order to determine whether there were differences between the two hemispheres of human brains.

Conclusions

Sperry argued that his studies give considerable support to his argument of lateralisation of function. That is, that different areas of the brain specialise on different tasks, such as the left hand side is responsible for language.

He also went on to argue that each hemisphere has its own perceptions and memories and experiences.

Evaluation of procedure

A strength of Sperry's procedure was that by using a mixture of quasi-experiments and clinical case studies, he was able to combine both qualitative and quantitative approaches. The quasi-experimental is a quantitative method of data collection, that is, it provides information in the form of numbers and frequencies, and so can be easily analysed statistically. The information that is gathered is regarded as fairly reliable, but not very valid. On the other hand, the case study is a qualitative method of data collection which is concerned with describing meaning. It is argued that what

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the case study loses on reliability it gains in terms of validity. Thus, such a combination of methods allows for the collection of statistically reliable information to be enhanced by information about the research participants' explanations.

A major criticism of the procedure was Sperry's sample. 11 participants is a very small sample, however, Sperry may not have had any control over this – there may not be very many split-brain patients available for study. The small sample also enabled Sperry to gain more in-depth data.

The 11 split brain patients were lumped together as the experimental group, but some of the patients had experienced more disconnection than others. We also cannot be sure how long each of the patients had experienced ineffective drug therapy which could have also affected the findings.

The comparison group used by Sperry, was people with no inter-hemisphere disconnection, it could be argued that a much more valid group would be epileptic people who had not had their hemispheres disconnected.

A further weakness of the study relates to ecological validity. The findings of the study would be unlikely to be found in a real life situation because a person with severed corpus callosum who had both eyes would be able to compensate for such a loss.

Evaluation of explanation

Sperry points out that his studies demonstrate that there is lateralisation of function.

However, not all psychologists agree. For example, some psychologists argue that the two hemispheres do not function in isolation but as a highly integrated system. They argue that most everyday tasks are a mixture of ‘left’ and ‘right’ skills, (e. g. in listening to speech we analyse both the words and the pattern of intonation) thus, rather than ‘doing their own thing’ the two hemispheres work very much together.

There is also some evidence of gender differences whereby women show less lateralisation than men. So, the left-right specialism could be more prevalent in men than women.