

Biological Approach

Q. 1) A technology company noticed that some employees adapted very quickly when a new software system was introduced, while others took much longer to learn it. Managers found that employees who mastered the system quickly were better at remembering new procedures and switching between different tasks. The company wanted to understand whether there were biological differences that might explain these variations in performance. However, the managers could only observe employees' behaviour and test scores. They could not directly see what was happening inside the brain while employees were learning. A team of psychologists was invited to investigate the neural processes involved in acquiring these new skills. The psychologists wanted to identify which brain areas were active during learning and whether there were differences between fast and slow learners.

Explain how brain imaging techniques could be used to investigate the neural processes involved in learning the new software system. [6]

Brain imaging techniques could be used to investigate the neural processes involved in learning the new software system because they allow psychologists to observe brain activity while employees are acquiring new skills. Managers can observe behaviour and test scores, but they cannot directly observe the biological processes behind learning.

One technique that could be used is **fMRI (functional magnetic resonance imaging)**, which measures changes in blood flow associated with neural activity. Employees could be scanned while learning or using the new software. This would enable psychologists to identify which brain regions are active during cognitive processes such as memory, attention, and task-switching. The technique could therefore help explain why some employees learn the system more quickly than others.

Brain imaging could also be used to **compare fast and slow learners**. If employees who master the software quickly show greater activation in brain regions associated with memory formation or executive functioning, this would indicate biological differences that may contribute to variations in learning performance. Such findings would go beyond behavioural observations and provide evidence about the neural basis of learning.

A key strength of brain imaging is that it helps researchers to **establish links between cognitive processes and specific brain areas**. In this study, psychologists are interested in the neural processes involved in acquiring new skills. By identifying patterns of brain activation during learning, brain imaging can show how the brain supports memory, attention, and cognitive flexibility.

Overall, brain imaging techniques such as fMRI could be used to identify the brain regions involved in learning the new software and to investigate biological differences between fast and slow learners, giving a deeper understanding of the neural processes underlying learning.

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Cognitive Approach

Q. 1) Researchers at a wildlife conservation centre were trying to reduce stress in endangered birds during routine veterinary examinations. They noticed that the birds became highly distressed whenever staff approached their enclosures, making medical check-ups difficult. Instead of changing the examinations themselves, the researchers introduced a short piece of soft instrumental music several seconds before presenting the birds with their favourite food each day. This procedure was repeated for three weeks without any medical examinations taking place. Afterwards, the researchers played the same music before routine health checks but did not provide food. Surprisingly, many of the birds appeared calmer, vocalised less, and were easier to handle than they had been at the beginning of the study. The researchers concluded that the music had acquired a new psychological meaning for the birds through repeated experiences during the training period.

Explain the researchers' findings using the principles of classical conditioning. [6]

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Sociocultural Approach

Q. 1) A large international university has welcomed an increasing number of students from different countries over the past five years. Although all international students receive the same orientation programme and academic support, they adapt to university life in different ways. Some actively participate in local student clubs while continuing to celebrate the traditions of their own culture. Others avoid interacting with local students and spend nearly all their time with people from their home country. A third group tries to abandon their original cultural practices completely in an effort to fit in, while a small number withdraw from both local students and students from their own cultural background. The university has become concerned because levels of academic success, well-being, and social integration differ considerably across these groups. The university has asked a cultural psychologist to explain these differences and recommend ways of helping international students adjust more successfully.

As the cultural psychologist, explain the students' different patterns of adjustment using models of acculturation. [6]

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About the Author

With **over 12 years of international teaching experience**, **JYOTIKA VARMANI** has guided students across the world to achieve **7s in IBDP Psychology**, A*s in Cambridge, AQA, Edexcel and OCR A-Levels Psychology, 5s in AP Psychology and top grades in GCSE and IGCSE Psychology. Her students study across the UK, UAE, India, Australia, New Zealand, Europe and the US.

Known for **highly exam-focused teaching**, detailed essay training and markscheme-based preparation, she specializes in simplifying difficult psychological concepts into clear, structured answers that match exactly what examiners expect in IBDP Psychology. Her excellent mentorship encourages both SL and HL students to pursue their **EEs in Psychology** as their preferred subject of choice.

Jyotika is the Psychology Teacher at **Modern College Mauritius** and Subject Expert for at **Podar International School, Mumbai**. Her psychology resources, notes and videos are used internationally by students, teachers and schools, with millions of readers across educational platforms and psychology websites.

These notes are designed not just to help students study Psychology, but to help them write high-scoring answers confidently in the IBDP examination.

Reach out to Jyotika Varmani for scheduling psychology classes, assignment consultation and related services-



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