

The background of the cover is a vibrant blue, adorned with white line art. This art consists of several stylized, overlapping faces and profiles. Some faces have closed eyes, while others have open eyes. There are also smaller, simpler line drawings of faces and a heart shape scattered throughout the composition. The overall style is modern and artistic, evoking a sense of psychology and human emotion.

ESSENTIAL STUDIES FOR A-LEVEL PSYCHOLOGY

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Richard Gross (Consultant Editor)

Suitable for AQA, OCR, Pearson Edexcel,
Eduqas and WJEC specifications



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6 Rutter et al. (2004)

Are there biological programming effects for psychological development? Findings from a study of Romanian adoptees, *Developmental Psychology*, 2004, vol 40, No1, 81–94

Summary

Aims of the study	To examine the recovery made by Romanian orphans who had been adopted into UK families following a period of privation to see whether the prior cognitive and physical delay was due to the early environment of deprivation
Research method	Natural experiment , longitudinal
Sample	<p>144 Romanian orphans (this sample was taken from a total of 324 who were adopted into the UK between February 1990 and September 1992 through the UK Department of Health and the Home Office). Only those adopted into England took part, and this study focused on those who had entered England before the age of two.</p> <p>Stratified sampling was used to obtain a sample of children, ranging from newborn to 42 months.</p> <p>Comparison group</p> <p>A comparison group of infants who had been adopted from within the UK was used. All the children had been placed for adoption before the age of six months. The sample was obtained through the local authority and voluntary adoption agencies.</p> <p>There were 52 children in the comparison group.</p> <p>Adoptive parents</p> <p>Both groups of adoptive parents had educational and work levels above the general population norms but there was no significant difference between the two groups.</p> <p>The main difference was that the parents adopting children from Romania were older than parents adopting children from the UK.</p>

KEY TERMS

Deprivation: when a child has formed an attachment bond but it has been disrupted. For example, of the small percentage of children who were raised in their families before being put up for adoption, the children may have formed a bond with either their mother or another caregiver within the family.

Natural experiment: a type of research method where the independent variable (IV) is not controlled by the experimenter. The research occurs when a situation is naturally occurring and the researcher uses the opportunity to investigate such as the children being adopted from Romania in the Rutter study.

Stratified sampling: once a target population is identified, psychologists then look at subpopulations within the target population and use random sampling to choose a proportionate number of participants from each subpopulation.



NOTE

An example of stratified sampling is if the target population was Year 12 students in a sixth form at a school in Sussex, the subpopulation might be their birth month. The psychologist would see how many students were born in each month and ensure that they were proportionally represented. For example, if the psychologist wanted a sample of 100 students, they would calculate it like this: If the total population was 200 and 10 students (five per cent) were born in May and 20 (ten per cent) were born in September, the psychologist would randomly choose five students who were born in May and ten who were born in September and so on (as this represents five per cent and ten per cent of the sample of 100 students).

KEY TERM

Retrospectively: looking back on past events and recalling what happened.

NOTE

Eighty-one per cent of the parents approached agreed to take part in the study. Ninety-one per cent of the children had been raised for either all or most of their lives in an institution, with only nine per cent being raised in a family setting.

Materials	<ul style="list-style-type: none">● Weight measures, which indicated whether the child was malnourished or not (compared to UK population norms at the time).● Head circumference, which indicates brain growth (compared to UK population norms at the time).● Revised Denver Developmental Scales (R-PDQ) – a set of measurements designed to be used by parents. The measurements focus on milestones such as standing while holding onto something, or saying basic words like ‘dada’.● McCarthy scales (GCI) (a test of IQ).
Procedure	<ul style="list-style-type: none">● The children’s height, weight and head circumference were assessed on the basis of Romanian records and the physical examination that they were given on entry to the UK.● The Romanian records were not very detailed and did not contain much data. However, the findings more or less corresponded with those taken in the UK.● Neither the UK nor Romanian records included data from developmental assessments, e.g. whether the children had reached certain developmental milestones and at what age, such as smiling, lifting their head independently, making meaningful noises. This meant that Rutter <i>et al.</i> had to depend on baby books, video recordings and parental reporting.● Parents were asked to complete the Denver Developmental Scales retrospectively, detailing what the children were and were not able to do when they were first adopted.● The children were tested again at the age of six, this time on both the Denver scales and the McCarthy scales.

Findings

On arrival in the UK

Most of the Romanian children were in a poor physical state at the time of entry into the UK. Health conditions among the children included severe malnutrition, chronic and recurrent respiratory infections, and chronic intestinal infections. Many of the children also had skin conditions.



Professor Rutter’s studies of Romanian orphans have aimed to see if the effects of institutionalisation can be overcome through loving care by adoptive parents

Cognitive impairment

On arrival in the UK

There was a linear relationship between length of time spent in an institution and cognitive impairment:

< 6 months = 2.3 per cent

> 6 months but < 24 months = 12 per cent

> 24 months = 32.6 per cent

This demonstrated that the longer the child spent in an institution, the greater the percentage of cognitive impairment. No significant impairments were found in the Romanian children who had spent less than six months in an institution.

Over half the children were assessed as having severe learning difficulties.

At six years of age

Table 6.1 The **cognitive catch-up** of the children at the age of six compared to when they arrived in the UK

	R-PDQ score on entry to the UK	GCI at six years
Age on entry to the UK	Mean IQ score	Mean IQ score
> 6 months, < 24 months		
Without severe malnutrition	44.55	91.94
With severe malnutrition	44.87	98.56
> 24 months, < 42 months		
Without severe malnutrition	40.06	98.08
With severe malnutrition	38.73	82.04

The mean scores in Table 6.1 show that most children just about caught up with the average IQ (100) by the age of six (the highest individual IQ being 115).

Those children who had experienced both the longest period in an institution and malnutrition had the lowest average IQ.

Disinhibited attachment behaviour

On arrival in the UK

Of the Romanian orphans 22.4 per cent showed disinhibited attachment behaviour compared with only 3.8 per cent of the children adopted within the UK.

However, the longer the child had spent in institutional care, the more likely they were to exhibit **disinhibited attachment behaviour**:

< 6 months = 8.9 per cent

> 6 months, < 24 months = 24.5 per cent

> 24 months, < 48 months = 33.3 per cent

KEY TERM

Cognitive catch-up: this is how well the infants had caught up on their cognitive development in terms of what they should be able to do at the age that they were.

NOTE

Following the fall of the Ceausescu authoritarian government in Romania, large numbers of children who had been reared in extremely poor conditions of privation in institutions were adopted into UK families. Rutter *et al.* wanted to see what effects long-term privation had had on these children.

The conditions in the institutions ranged from poor to appalling. The children were confined to cots and had few toys, if any. Their caregivers rarely interacted with them and they were fed mainly **gruel** in bottles that were often just left propped up in their cots. The physical care was harsh. Children were often hosed down with icy cold water to clean them or bathed in dirty cold water. There was no love or nurturing and children were mostly just left alone in their cots; many of them just rocked themselves back and forth.

There are many articles online about the conditions and the background.

KEY TERMS

Disinhibited attachment behaviour: where children will approach adults they have not met before and interact with them without any fear. For example, they would be likely to walk off with a stranger with no hesitation. This is a result of not forming a bond with a primary caregiver.

Gruel: thin liquid food made from oatmeal or similar boiled in water or milk.

At six years of age

There was little change in the percentage of disinhibited attachment within the groups, especially the group who had been in institutional care for >18 months. Between the groups, there was still a significant difference in the levels of disinhibited attachment.

For those children who had been in institutional care for <18 months, the rate of disinhibited attachment was 16 per cent.

For those who had been in institutional care for >18 months, the rate was 33 per cent.

Weight and head circumference

On arrival in the UK

Fifty-eight of the 111 Romanian children were at least 1.5 **standard deviations** below the UK average for children of that age for their weight and many were three standard deviations below the average.

Head circumference was 2–3 standard deviations below the norm in the Romanian children. The longer the children had been in an institution and the greater their malnutrition, the smaller the head circumference.

At six years of age

By the age of six, the Romanian children's weight had shown a huge catch-up with those children who had been adopted between the ages of 6 and 24 months, having almost caught up (now showing an average weight for their age and sex).

Those children who had been adopted after 24 months had almost caught up on their weight.

In contrast, those children who had not been severely malnourished were still 1.5 standard deviations below the population mean for head circumference.

Those children who had been adopted between 24 and 42 months and who had been severely malnourished were approximately 2.5 standard deviations below the population mean for head circumference.

This suggests that the difference in head circumference could not just be explained by the children being malnourished when they were in the institutions.

KEY TERM

Standard deviation: tells you how much the scores of a group are spread out around the mean. In the case of the Romanian children, it shows that their weight and head circumferences were on average significantly below those of average children in the UK.

NOTE

Cognitive impairment was most likely in those children whose head circumference was well below the population mean. Growth charts are used to plot babies' and young children's weight and height in order to check that they are gaining weight and growing healthily. They use percentiles, based on standard deviations. They are calculated using the data from many babies and young children to find population averages for boys and girls, showing what an 'average' weight and height a child would be at a certain age. Ask your parents – they may still have yours!

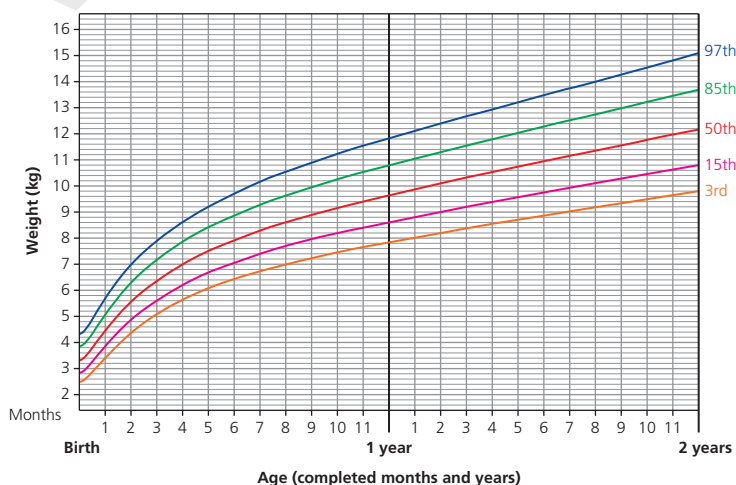


Figure 6.1 UK growth chart

Education levels of the parents and cognitive catch-up of the children

The researchers divided the parents into four groups based on their level of education (from leaving school with no qualifications to university degree/professional qualifications).

They found no correlation between the education level of the parents and the cognitive catch-up shown by the children.

This suggests that the children weren't increasing their cognitive ability simply because they had been adopted by parents who were highly educated.

This suggests that the most important thing that predicts how well a child who was adopted into the UK, is how long they spent in an institution before being adopted. Although those who had experienced severe malnutrition in the group who were adopted after the age of 24 months had more cognitive delay than those without severe malnutrition. This suggests that malnutrition plays some part. However, for those children who were adopted before 24 months, severe malnutrition did not impact on their ability to thrive and catch up cognitively. In fact, those in the group who were adopted before 24 months with severe malnutrition showed greater cognitive catch-up than those who were adopted before 24 months but had not had severe malnutrition.

Conclusions

The length of time spent in institutional care had a significant impact on cognitive development. The longer spent in care, the greater the negative impact on cognitive development.

Those children who entered the UK before the age of six months had caught up developmentally with the within-UK adoptees by the age of six.

While those who entered the UK over the age of six months had also shown positive development. However, those who had experienced severe malnutrition were still below the national average for IQ.

There is no association between adoptive parents' education levels and the child's cognitive development.

The data does not allow for a clear differentiation between the effects of malnutrition and psychological privation because the vast majority of the children experienced both. However, Rutter *et al.* concluded that duration of both malnutrition and psychological privation during the first two years of life were important predictors for how well a child will develop cognitively.

Evaluation

- **Reliability of data:** The initial evaluation of the children's developmental level was based on two measurements, neither of which was robust or reliable:
 - incomplete data from Romanian records
 - retrospective recollections of the children's abilities and milestones when they arrived in the UK, provided by their adoptive parents.

However, the fact that they were rated as being so far below the normal attainment for children in the UK suggests that even if the data was not completely accurate, the children were developmentally delayed.

NOTE

These findings support those reported by Skeels and Dye in the 1930s. They compared the IQ of children who were in an orphanage to a group they sent to an institution for women with learning difficulties. Those who remained in the orphanage lost an average of 26 IQ points whereas those who had been sent to the care of the women gained an average of 27.5 IQ points. They concluded that it was the love, care and attention that the children received that increased their IQ level.

Think about the ethics of the Skeels and Dye study compared to the Rutter *et al.* study.

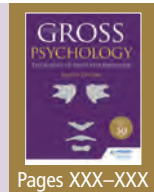
- **Usefulness:** The study was useful because it offered an understanding of the effects of extreme privation on physical and cognitive development and how those delays can be overcome in a nurturing environment. The findings highlight the importance of nurture and emotional care in the healthy development of children. The findings from this research and others like it were used to influence significant changes in how children in institutions are cared for.
- **Ethics:** Using a natural experiment allowed researchers to investigate extreme privation in a way that it would not have been ethically possible to do otherwise. However, it does mean that less control was possible. For example, although participants were chosen by random selection from the whole cohort of children, this was not possible for those who were in the older age bands, so the sample may have been biased. Also, only 80 per cent of adoptive parents agreed to take part in the research. It could be that the parents of the remaining 20 per cent differed from the other parents in some way and the children may have shown different levels of developmental catch-up than the others.
- **Support for theory of attachment:** The findings support Bowlby's idea of a critical period (around two-and-a-half years) in which children can form an attachment bond, which allows cognitive development to take place.

This study has the following links within the A-level specifications: privation, deprivation, Bowlby, attachment, development, natural experiment, self-report, IQ, cognitive.

The following studies also provide essential links:
Bowlby (1944) – pages 205–9
Gould (1982) – pages 192–4

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As with so many natural experiments, people are investigated who have had negative experiences; where children are involved, these accounts can be particularly distressing and upsetting. The flip side is the beneficial changes they subsequently enjoy. In both cases, these experiences are in no way influenced by the researchers who report the study: they merely take advantage of naturally-occurring situations to increase our understanding of how these affect development. ('Natural experiments' are not to be confused with 'naturalistic (or field) experiments' – in the latter, the researcher manipulates some aspect(s) of a naturally-occurring, real-life situation, such as in the Piliavin *et al.* (1961) study.)



Check your knowledge

- 1 How many Romanian children were in the final sample?
- 2 What tests did Rutter *et al.* use to measure cognitive development?
- 3 What physical measurements were taken?
- 4 What were the issues with measuring the children's cognitive development when they arrived in the UK?
- 5 What was found to be the most significant factor in the children's cognitive development?

20 Bandura, Ross and Ross (1965)

Transmission of aggression through imitation of aggressive models, *Journal of Personality and Social Psychology*, Vol 1, No 6, 589–595

Summary

Aims of the study	To investigate whether vicarious or direct reinforcement influence the learning of new behaviours
Research method	Laboratory experiment IV: whether the model was rewarded or punished for their behaviour DV: the number of matched responses the participants made Observation was used to gather the data
Design	Independent measures
Sample	33 boys and 33 girls, all enrolled in the Stanford University Nursery School 42–71 months old (mean age 51 months) Assigned randomly to one of three conditions: <ul style="list-style-type: none"> ● model rewarded ● model punished ● no consequences 11 boys and 11 girls in each condition
Materials	Room one <ul style="list-style-type: none"> ● Television ● Film of a model acting aggressively towards an adult-sized Bobo doll ● Chair Room two <ul style="list-style-type: none"> ● Bobo doll, three balls, mallet, pegboard, dart guns, plastic farm animals, doll house and dolls ● One-way mirror ● Fruit juice ● Stickers ● Country-side scene attached to the wall

KEY TERMS

Vicarious reinforcement:

seeing other people being rewarded for behaviour makes us more likely to imitate that behaviour.

Direct reinforcement: being rewarded for behaving in a certain way. In this study the children were rewarded with stickers and juice if they imitated the model's behaviour.



A Bobo doll

NOTE

The four novel aggressive acts that the adult modelled were as follows:

- Laid Bobo on its side and punched it on the nose, saying, 'pow, right in the nose, boom boom.'
- Raised Bobo and hit it repeatedly in the head with a mallet, saying, 'sockeroo, stay down.'
- Kicked Bobo around the room, saying, 'fly away.'
- Threw rubber balls at Bobo, saying, 'bang' each time they hit him.

NOTE

For part 3, participants were taken to a second experimental room which contained a Bobo doll and other toys. Children were told that they were free to play with the toys. The experimenter left the room, saying she had to get more 'play materials'.

Procedure**Part one**

- 1 Participants were tested individually.
- 2 They were taken into a darkened room by the experimenter and told she had some 'business to attend to' before they could go to the playroom.
- 3 They were sat down in front of the television and watched a film for five minutes.
- 4 The film: in the film, an adult modelled four novel aggressive acts on a Bobo doll.

Part two

Three conditions:

- Model-rewarded – participants in the model-rewarded condition then saw a second adult appear who praised the model's performance as a 'strong champion' and rewarded him with sweets and soft drinks.
- Model-punished – participants in the model-punished condition saw a second adult appear who told the model off for his behaviour, then when the model tripped and fell, the second adult spanked him with a rolled-up magazine.
- No consequences – participants saw the same film as the other two conditions, except there was no second adult at the end.

Part three

- The participants remained in the room for ten minutes.
- The experimenter returned five minutes into the session to reassure the child, ensuring that the participant would not be on his/her own for too long. They then left again.
- Behaviour was recorded by two observers behind a one-way mirror.
- Neither of the observers knew which condition the child had been assigned to.
- Imitative behaviour was recorded every five seconds.
- Inter-rater reliability was very high, with 99% agreement as the behaviour that they were measuring – i.e. copying the specific behaviour of the adult model – was very distinct.

Part four – positive incentives

In the final phase, the experimenter returned with fruit juice and stickers to encourage the children to reproduce what they had seen and heard.

- The children were told that they would be given stickers and juice each time they reproduced what the model in the film did or said.
- The participant was asked, 'Show me what Rocky did in the TV programme. Tell me what he said.'

Findings

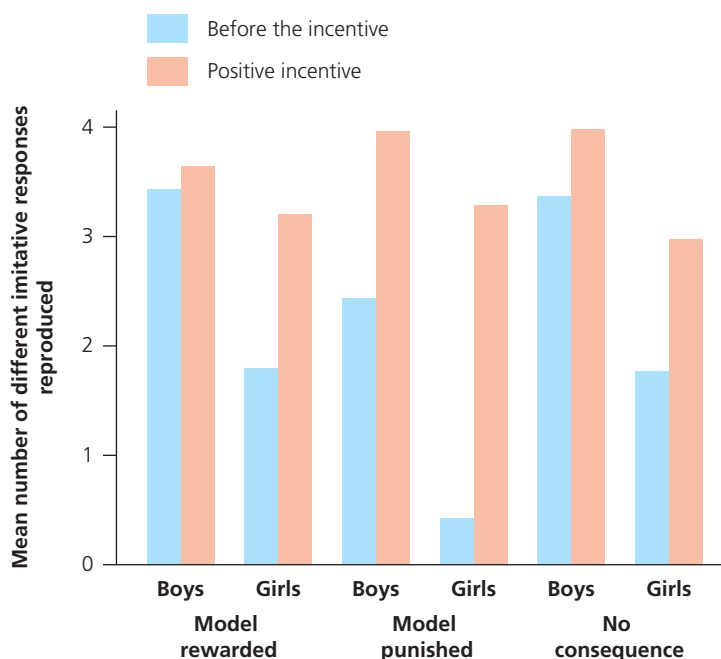


Figure 20.1 Mean number of different matching responses reproduced by children in response to seeing the model rewarded/punished/no consequences and to the positive incentives

Before children were given juice and stickers (vicarious reinforcement)

There was no significant difference in the imitative responses of the children between those shown the model-reward video and those shown the no-consequences video.

However, there was a significant difference in the imitative responses of the children between the model-reward and the model-punishment conditions. If the participants had seen the model rewarded, they were more likely to spontaneously imitate that behaviour (without being rewarded themselves).

Overall, boys performed more imitative responses than girls.

There was also a highly significant difference between boys and girls in the imitative responses of both the model-reward and the model-punishment conditions, with boys again demonstrating more imitative responses than girls.

After the children were given juice and stickers (direct reinforcement)

When the children were given incentives (juice and stickers), the differences between the conditions in imitative behaviour disappeared (in other words, they all showed a lot of imitative behaviour).

The differences between boys and girls in imitative responses was less once the children had been given incentives (girls demonstrated many more imitative responses, but still fewer than the boys).

Boys who witnessed either the model-reward or the no-consequences condition showed no new imitative responses after receiving the incentives.

However, boys who were in the model-punished condition or girls in all three conditions showed significant increases in imitative behaviour after they received the incentives.

Conclusions

The experiment provides evidence to support the social learning theory that children can learn from role models through vicarious reinforcement (seeing other people be rewarded for a behaviour).

Most of the children failed to reproduce all of the behaviour demonstrated by the model, even when the model's behaviour was rewarded. Giving the children incentives suggests that just viewing a sequence of behaviour, even with incentives, is not enough for it all to be modelled. It suggests that there are other factors involved. For example, the participants may not pay attention to the whole sequence of behaviours demonstrated by the model. Therefore, the participants may have paid attention only to the behaviours they found interesting or distinctive.

What information children recall may be linked to where the imitated behaviours occurred in the original sequence (primacy and recency effect – where they recall best behaviours demonstrated first and last).

Check your knowledge

- 1 What is the definition of vicarious reinforcement?
- 2 What were the three conditions that participants could be assigned to?
- 3 What was the mean age of the children in the study?
- 4 How were the children rewarded for imitating the models?
- 5 What happened to the levels of imitation of behaviour by the female participants *after* they were rewarded?

Evaluation

- **Ethics:** This study is unethical, as some of the young children were exposed to a film showing models who were acting violently and then had that behaviour rewarded. It could also have taught them that acting in a violent and aggressive manner is acceptable and they could have continued to behave aggressively outside of the experiment.
- **Replication:** The experiment is detailed enough to allow replication: it used standardised instructions, had controls (e.g. the specific actions that the model used on Bobo) and the sessions were timed precisely. This suggests the study has good internal reliability.
- **Validity:** The experiment is not very representative of social learning in real-life situations because the theory states that children learn behaviour from role models. It could be argued that the models in the experiment did not actually represent role models to children, as they were complete strangers. Therefore, the study lacked ecological validity and may not be generalisable to real-life situations.

This study has the following links within the A-level specifications: operant conditioning, aggression, Bobo doll, observation, social learning theory, imitation, behaviourist approach, vicarious reinforcement, reward.

The following studies also provide essential links: Bandura, Ross and Ross (1961/63) – pages 39–44 and 93–6
Brendgen *et al.* (2005) – pages 88–92

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The importance of the study lies in its demonstration of the distinction between *learning* and *performance*. It shows that aggressive behaviour can be *learned* (acquired) merely through seeing it performed (as in watching the filmed model being rewarded: *vicarious reinforcement*) but that *direct reinforcement* is necessary for that behaviour to be displayed (as when the child is offered sweets, etc. for imitating the model).

This undermines Skinner's concept of reinforcement as something that works *automatically*: we can only explain the learning/performance distinction by attributing the child with *cognitions* (including attention and memory), which Skinner denied play any part in explaining behaviour. Bandura (1986) renamed social learning theory as *social cognitive theory* to underline the critical role of cognitive factors.

