BEHAVIOURAL, EMOTIONAL AND SOCIAL DEVELOPMENT
UNIT 14
THE INTERACTION OF GENETIC AND ENVIRONMENTAL FACTORS, THE CONCEPT OF RESILIENCE AND RISK AND PROTECTIVE FACTORS FOR BESD

LEARNING OBJECTIVES

Teachers will:

- Know about the complex interaction of genetic and environmental factors that influence behaviour
- Recognise the limits of current knowledge in this area.
- Recognise some of the protective factors in the personal, social, family and community environments that contribute to resilience
- Consider ways in which these protective factors might be promoted to increase resilience within school.

ONLINE RESOURCES

The content and tasks throughout these PDFs are supported by online resources that are designed to facilitate and supplement your training experience.

Links to these are signposted where appropriate. The resources use graphics and interactive elements to:

- Highlight salient points
- Provide at-a-glance content summaries
- Introduce further points of interest
- Offer visual context
- Break down and clearly present the different stages and elements of processes, tasks, practices, and theories

The online resources offer great benefits, both for concurrent use alongside the PDFs, or as post-reading revision and planning aids.

Please note that the resources cannot be used in isolation without referencing the PDFs. Their purpose is to complement and support your training process, rather than lead it.

You should complete any learning or teaching tasks and additional reading detailed in this PDF to make full use of the Advanced training materials for autism; dyslexia; speech, language and communication; emotional, social and behavioural difficulties; moderate learning difficulties.

To find out more about the resources, how they work, and how they can enhance your training, visit the homepage at: www.education.gov.uk/lamb

The first resource for this unit can be found here:
www.education.gov.uk/lamb/besd/genetic-environmental-factors/intro

THE PATTERN OF INTERACTION

BRIEFING

When working with pupils with BESD, there are a number of contributing factors that can influence teachers' responses to pupils' behaviour. The level of significance that we accord to the different factors will depend to an extent on our interpretation of whether genetic or environmental factors have the greater influence on behavioural, emotional and social development.

Over the years there has been a tendency to polarise these contributing factors, allocating greater influence to one or the other, according to the social or political philosophies, which were popular at the time.

In the 1960s, there was an uncritical acceptance of the lasting and irreversible effects of early childhood experiences and of the extent to which social disadvantage constituted a major cause of BESD. But in the 1980s, it was recognised that the same or similar environmental factors led to a variety of individual outcomes and so the effects of the environment were given less weight.

The current approach is based on recognition that both genetic and environmental factors play an important part but that the relationship between them is more complex than is sometimes understood. This quote from Michael Rutter (2006) illustrates this:

> *"Environmental risk factors operate most strongly with genetically vulnerable individuals in both anti-social behaviour and depressive disorders"*

See online resource:
www.education.gov.uk/lamb/besd/genetic-environmental-factors/history

The research-based evidence for the influence of genetic or environmental factors is set out in Sir Michael Rutter's book (2006) '*Genes and behavior: nature-nurture interplay explained*'[1] The following is a brief selection of some points of particular interest in relation to BESD and is based on Rutter's work. Up-to-date and accessible information on further developments in research on the human genome is available from the National Center for Biotechnology Information: www.ncbi.nlm.nih.gov

- Genetic research into psychological functioning has two main methodologies:
  - Quantitative genetics is based on analysis of various populations, mainly twin and adoptee studies, to quantify the relative strength of genetic and non-genetic factors in individual differences with respect to some trait or disorder.
  - Molecular genetics is concerned with the identification of specific individual genes that are involved in the susceptibility to particular features, either mental or physical

See online resource:
www.education.gov.uk/lamb/besd/genetic-environmental-factors/genetics

- The sequencing of the human genome is likely to advance the discovery of the susceptibility genes associated with psychological features but Rutter (2006) gives a note of warning that,
  "talk about how it will soon be possible to have genetic profiles at birth that will enable us to know all about our propensities and susceptibilities is highly misleading"
- Quantitative genetic studies have increasingly tested for and found major interplay between genetic and non–genetic factors so that outcomes cannot sensibly be attributed to one or the other because they depend on both
- In a few cases, such as autism and schizophrenia, genetic factors account for most of the variance in population – over 70 per cent
- It remains difficult to identify genes for individual disorders - there is no gene yet identified for autism, for example - and to characterise the particular environmental circumstances under which psychopathology emerges
- Many disorders probably result from the combined action of multiple genes of small effect, together with a variety of environmental factors
- Individual genes and environmental factors exert their effects only via interaction with other genes and other environmental factors
- It is quite common for the same genetic factors to underlie supposedly different types of mental disorder. For example there are shared genetic factors involved in the liability to oppositional, defiant disorder (ODD) and Attention Deficit Hyperactivity Disorder (ADHD), even though the psychiatric diagnostic systems classify them as separate conditions.
- Both quantitative and molecular genetic studies support a partly shared genetic aetiology between ADHD and SpLD (dyslexia) but studies identifying a single

gene for either ADHD or Dyslexia are inconclusive. There is no evidence of shared gene

The Concept of resilience and risk and protective factors for BESD

From the previous section on the pattern of interaction of it is clear that children vary in their vulnerability to psychological stress and adversity as a result of both genetic and environmental influences. Some children appear to have "*that capacity to successfully overcome personal vulnerabilities and environmental stressors, to be able to 'bounce back' in the face of potential risks, and to maintain well-being* Wang (1994). These children are described as 'resilient'

The study of resilience seeks to identify what these abilities are and how to nurture them. Evidence about resilience can be found in a body of cross-cultural developmental studies in socially derived areas of the USA in the 1990's.

Bonnie Benard[1] (1991) highlights the findings of these longitudinal studies which showed that half to two-thirds of children growing up in families with mentally ill, alcoholic, abusive or criminally involved parents or in communities that were poverty-stricken or war-torn overcame such disadvantages and successfully adapted and transformed their lives.

See online resource:
www.education.gov.uk/lamb/besd/genetic-environmental-factors/resilience

What are the protective factors which mitigate or buffer the effects of risk which these children experience?

A risk factor is usually defined as a factor that increases the likelihood of a future negative outcome for a child. A protective factor is a variable that decreases such a probability (Durlak, 1998).

Studies such as those of Norman Garmezy (1985), Michael Rutter, (2007) Bonnie Benard (1991) and J. David Hawkins (1992) identify a number of factors which are identified as contributing to risk of disruptive behaviour.

TABLE 1

Domain	Risk factor
Individual/peer	• Alienation/Rebelliousness • Friends Who Engage in Problem Behaviour • Favourable Attitude Toward Problem Behaviour
Family	• Family Management Problems • Family Conflict • Family History of Problem Behaviour
Community	• Availability of Drugs • Community Laws and Norms Favourable Toward Problem Behaviour

	• Low Neighbourhood Attachment and Community Disorganization • Severe Economic Deprivation

Most studies refer to a number of domains (individual, family, school, community) in which key risk and protective factors operate. Each of these of these domains is said to possess distinctive attributes which can serve to counteract the potential negative outcomes and instead promote the development of resilient qualities in pupils who may be 'at risk'

In the context of BESD, educators are concerned with the protective factors which decrease the risk of children developing harmful and/or destructive behaviour patterns.

Researchers have identified protective factors in differing terms, but three key factors described by Benard (1991) are commonly referred to in the literature as conditions that promote protective factors in schools. These are grouped under the headings of:

- Caring and support
- High expectations
- Opportunities for meaningful participation

Table 2

Protective factor	Conditions
Caring and Support	• Nurturing Staff and Positive Role Models • Creative, Supportive School Leadership • Peer Support, Cooperation, and Mentoring • Personal Attention and Interest from Teachers • Warm, Responsive School Climate
High Expectations	• Minimum Mastery of Basic Skills • Emphasis on Higher Order Academics • Avoidance of Negative Labelling and Tracking
Opportunities for Meaningful Participation	• Leadership and Decision-Making by Students • Student Participation in Extracurricular Activities • Parent and Community Participation in Instruction • Culturally Diverse Curricula and Experiences

How can these protective factors be promoted in schools?

The promotion of resilience in schools can be seen either as structural, in which it is simply reflected in the ethos of the classroom, or as overt, in which specific programmes are put in place.

In his book *Promoting Resilience in the Classroom* (2008) Carmel Cefai presents a model of a '*resilience –enhancing'* classroom, drawing on the three key school factors which are identified in the table above. He adds chapters on seven key

classroom processes which promote resilience; namely "*caring classrooms, prosocial classrooms, engaging classrooms, inclusive classrooms, empowering classrooms, and learning-focused classrooms" a*nd provides guidance on how to apply the ideas to classroom practice.

See online resources:
www.education.gov.uk/lamb/besd/genetic-environmental-factors/resilience-classroom

An alternative approach is that of the Government's UK Resilience Programme (UKRP) which aims to improve children's psychological well-being, building resilience and promoting accurate thinking through a programme of in-school workshops. The stated aim here is to *"build emotional resilience in 11-13 year olds at a critical stage of their development; evaluate the impact on the wellbeing, conduct and academic achievement of participating schools and develop a pool of locally-based professionals, skilled in resilience building".*

Three local authorities launched the programme in the 2007-08 academic year with a series of workshops delivered to Year 7 pupils in secondary schools.

See online resource:
www.education.gov.uk/lamb/besd/genetic-environmental-factors/resilience-programme

(See UK Resilience Programme Evaluation DFE RR097, April 2011)

Fictional case -study

The Sharman family moved house three years ago. The move came about because of a change in Chris Sharman's work but a more recent promotion means that Chris now spends quite long periods working away from home.

Jenny, the mother, has part-time job with a marketing company. She has periodic bouts of depression, which she has suffered from since she was a student at university. Occasionally, these are severe, lasting several days, when she cannot leave the house and needs help from her sister who comes to stay.

Milly is 14. She is bright pupil and a keen reader. She appeared to settle well in her new secondary school when the family moved but recently, she has been spending more time at home, apparently anxious and very reluctant to go to school.

Her teachers are concerned that the standard of her work is suffering. Milly had a close group of friends in her previous school but, in spite of suggestions from her mother that they could come to visit, has not made much effort to stay in touch with them. Her mother says she recognises the signs of depression. Milly sometimes spends time with Lara, her eight year-old sister, at home and likes to help her with her homework but she finds Rob, her 11 year-old brother, irritating. She doesn't get on well with her aunt and protests that she doesn't want her to come to stay.

Rob is has just transferred to secondary school. He didn't settle well into his primary school when the family moved. His class teacher was concerned about his low reading level and his poor attention span. He has been allocated extra support for reading and monitored for possible ADHD. At his new school, he is being disruptive and there have been several incidents of defiant non-cooperation particularly with women teachers. It is suggested that he may have ODD.

At parents evening, which she attended on her own, Jenny told the teachers that Rob is also difficult at home. She feels that his father has always been too soft with him and over-indulges him when he is at home.

His aunt is of the opinion that Rob has been a problem since he was a toddler and neither his mother nor his father has ever given him clear guidelines for behaviour.

Rob says that he hates the school, that nobody explains what he is supposed to be doing and the teachers pick on him. When asked what he would like to do he said that he would like to play football with his dad.

Lara started in the reception class at the primary school when the family moved. She quickly made friends with the little girl next door, who started at the same school and they are firm playmates. Lara has been having extra support for reading and is now making good progress. She is a sociable little girl who is popular with pupils and teachers. Her mother says that she has always been an easy and affectionate child.

Rob and Lara have occasional fights but quite often play together. Lara is fond of her aunt who often reads stories to her.

This fictional case study presents a vignette of a family with a number of emotional and behavioural issues and reflects some of the possible interactions between inherited and environmental factors which are discussed in the first section.

For example:

- Milly might have inherited a tendency to depression from her mother, but the circumstances of her change of school, her difficulty in forming new friendships and the circumstances at home caused by her mother's depressive episodes are all likely to contribute to her depression.

- The fact that both Rob and Lara appear to have reading difficulties may also suggest familial trait, but whereas Lara with early and sympathetic support appears to be making progress Rob is struggling.

- Rob's reading difficulties and the suggestion of ADHD may be an example of the shared genetic aetiology recognised between ADHD and Dyslexia.

Tasks

- From Table 1 can you identify some of the risk factors which might contribute to behavioural difficulties in any of the three children in the vignette?

- From Table 2 can you identify some of the protective factors which might be mitigating these risks for some of the children?

- Discuss with colleagues the protective factors, which you consider to be in place in your school, and consider what more could be done to promote pupils' resilience in the classroom

References

Benard, B. (1991). Fostering Resiliency in Kids: Protective Factors in the Family, School, and Community. Portland, OR: Western Center for Drug-Free Schools and Communities

Durlak, J. A. (1998). Common risk and protective factors in successful prevention programs. *American Journal of Orthopsychiatry*, 68: 512–520.

Garmezy, N. (1985). Stress-resistant children: The search for protective factors. In J. E. Stevenson (Ed.), Recent research in developmental psychopathology (Journal *of Child Psychology and Psychiatry Book Suppl. No. 4,* pp. 213-233). Oxford: Pergamon

Hawkins, J.D., Catalano, R.F., & Miller, J.Y. (1992) Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. Psychological Bulletin, 112, 64–105

Rutter, M. (2006) *Genes and behaviour: nature-nurture interplay explained.* London: Blackwell

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Wang, M. C., Haertel, G. D., & Walberg, H. J. (1994). *Educational resilience in inner cities.* In M. C. Wang & E. W. Gordon (Eds.), *Educational resilience in inner-city America: Challenges and prospects* (pp. 45-72). Hillsdale, NJ: Lawrence Erlbaum

Recommended reading

Cefai, C. (2008) *Promoting resiliency in the classroom*. London: Jessica Kingsley

Rutter, M. (2006) *Genes and behaviour: nature-nurture interplay explained.* London: Blackwell