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Short version

Socialisation in early childhood:

Biological, psychological, linguistic, sociological and economic perspectives

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Neurobiology, psychology, linguistics, sociology and economics are consistent in showing how early childhood experiences have a long-term influence on a person's later developmental trajectory. The effects of these early experiences – both positive and negative – can be traced into adult life. There are two reasons for this:

(1) Hereditary predispositions and environmental influences always work in tandem to determine the structure and workings of the nervous system – and thus shape both behaviour and experience. Neither the structures of the nervous system nor behavioural traits develop automatically: instead, "compatible" environmental influences are required for predispositions to manifest themselves. The reverse is also true: It is only in cases where susceptible hereditary predispositions are available that favourable environments can positively influence development. This close interaction between genetic makeup and environment applies throughout life, yet especially in early childhood.

(2) In early childhood, critical and sensitive periods exist, in which the individual must make certain environmental experiences. Only then can key structures within the nervous system and associated behavioural patterns develop to their full capacity. If these critical phases are not fulfilled by the necessary environmental influences, neuronal development remains incomplete and certain types of behaviour can be acquired only to a limited extent – or not at all. Such deficits

are irreversible. They accompany a person throughout life, and even when specifically targeted by training in later life can rarely be entirely compensated for and are sometimes intractable.

Seen from the perspective of lifelong development, funding early childhood education is thus a particularly advisable strategy. While this applies to the development of all children, it is particularly relevant for children who are born with sensory impairments or raised in disadvantaged environments (precarious familial circumstances, insufficient childcare, etc.). Such radically unfavourable environmental conditions must be recognised early on, since compensatory programmes must act at an early stage and thus before the end of sensitive phases.

Investment in high-quality educational and childcare programmes in early childhood is especially profitable both for the individual and for society at large, since it ensures favourable conditions for further developmental steps. Such funding should thus be secured and expanded over the long term.

While recent research findings attach particular importance to early childhood educational programmes, one should not overlook the need for later educational programmes catering to adolescents and young adults. Since subsequent experiences always build on earlier ones, however, the effectiveness of later investments will depend on the favourable conditions achieved by earlier educational programmes.

Since genetic makeup and environmental factors are inextricably intertwined, genetic dispositions must be actively addressed and fostered in all children. This does not apply solely to children from less favourable environments: children from favourable backgrounds also need encouragement and active support appropriate to their predispositions. Only in this way can the intellectual and social resources available within a society develop to their fullest potential, as the development of the individual and the social and economic conditions of a society as a whole are entwined over successive generations (see figure).

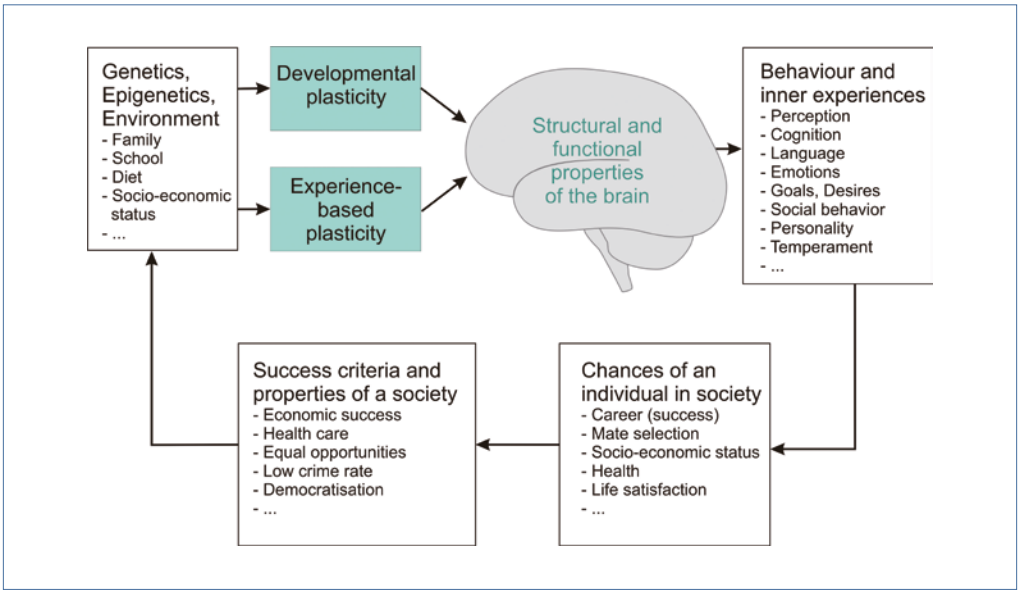

Figure (Frank Rösler). Socialisation: influencing factors and consequences. Structural and functional properties of the brain determine an individual's behaviour and inner experience (top right). This is expressed in perception, language, cognition, emotions, goals and desires, social behaviour and temperament. The properties of the brain–mind system develop on the basis of two mechanisms: functional and structural changes in the brain (plasticity), a process due to maturation and experience. These two forms of plasticity are dependent on genetic, epigenetic as well as environmental factors. The lower set of connections in the diagram indicates how an individual's behaviour determines his/her chances in society (bottom right) and how, at the same time, this, and the interactions between individuals, influences the characteristics of an entire society (bottom left). In turn, these societal and cultural characteristics then influence the maturational and experience-based plasticity (top left).

Recommendations

Language competence

The development of language in early childhood follows a biologically predetermined sequence of sensitive periods, in which certain kinds of linguistic experience must be acquired. Only if this experience is gained, can competence be achieved at the level of a native speaker. Educational programmes can and should be used to support the developmental process – which can be guided but not undone.

Where children grow up in families in which a society's dominant language is not spoken as a native language, access to this language spoken by native speakers should be provided as early as possible, i.e. no later than preschool. Otherwise full linguistic competence in the dominant language will most likely not be achieved.

To allay their fears, parents whose native language is different from that spoken in the society where they live should be made aware that early contact with a second language will not hinder a child's development of its parents' language of origin. Early bilingual competence does not lead to impairments of linguistic or cognitive capacities. If a child is likely to be making its home in a society for the foreseeable future where their mother tongue is not spoken, acquisition of "two first languages" should begin as early as possible, i.e. before the child's fourth birthday.

Even children from monolingual households should begin learning a second language as early as possible, so as to enable the acquisition of a very high degree of competence. Ideally, the acquisition of a second language should begin at preschool age and no later than primary school where possible, since children's language learning capabilities start to worsen considerably at the age of 8–10 years. The successful early acquisition of a second language requires an adequate investment of time, however, coupled with the availability of preschool educators with high competencies for the language to be learned.

Techniques to determine levels of linguistic competence must be applied early on – possibly during routine postnatal visits to the paediatrician or paediatric audiologist. Initially, the focus must be on the phonological aspects of the language. Only in this way can deficiencies affecting normal language development be identified early on and compensated for by taking appropriate action.

Basic cognitive abilities

The basic cognitive abilities collectively referred to as "general intelligence" – i.e. language proficiency, problem-solving abilities and memory capacity – develop by means of interaction between genetic predispositions and environmentally-dependent learning processes. The level of intelligence a person can achieve is not written in stone at birth but is also dependent on the environment, which crucially influences the elaboration of genetic predispositions. Positive environments boost – and negative ones hinder – the development of intelligence. Accordingly, genetic predispositions mark out the boundaries within which basic cognitive abilities can develop.

Children should be challenged and supported so that they can attain their maximum possible level of cognitive functioning. Challenges and support signifies that programmes should demand neither too little nor too much of the respective child's predispositions.

Properly utilising the intelligence inherent in children and adolescents drawn from across the population depends not only on satisfying basic physical needs in early childhood, however. Steps must be taken to ensure that children are raised in an emotionally supportive, cognitively stimulating environment, and acquire a society's dominant language and cultural techniques as a result of natural interactions with other children and adults.

Cognitive development should not be taken for granted. It requires targeted stimulation and continual gains in knowledge that permit the solving of increasingly sophisticated cognitive problems. Proficiencies and items of knowledge gained later always build on what has been learned before. The stronger the foundation, the more rapid and effective the learning processes it can support. The knowledge and cognitive bases to the domains of written language, mathematics and the natural sciences learned before a child's

tenth birthday are therefore of particular importance for his/her educational choices and later development at school.

Targeted support programmes are especially likely to succeed if they are able to reach children from disadvantaged social backgrounds. Yet fostering the intellectual potential in certain groups – i.e. improving their average performance – does not imply that all children and adults can achieve an identical level of competence. Even with beneficial training and schooling programmes in place, inter-individual differences in cognitive functioning will still tend to persist.

As a consequence, a society should not act solely to promote the development of intelligence, but should also provide career choices that can be taken by individuals with varying levels of cognitive functioning.

Social, emotional and motivational competencies

The development of social/emotional and motivational/volitional skills is crucially dependent on the formation of a secure attachment with primary caregivers in early childhood. These are usually the parents themselves: their sensitivity and warmth creates positive, culturally appropriate conditions for socialisation. Secure attachment is essential for the child to form a positive and realistic self-concept, and to develop proficiency in self-regulation and the ability to cope with stress.

Such self-regulation skills express themselves in emotion regulation and both behavioural and inhibitory control, i.e. they enable the individual to make goal-oriented decisions between conflicting behavioural choices and inhibit impulsive behavioural tendencies, e.g. when choosing to delay gratification. Empirical studies show that the degree of proficiency in self-regulation observed in childhood reliably predicts the course of later development in adolescence and adulthood in terms of academic and career success, social adjustment, physical and mental health, socioeconomic status and prosperity.

Groups at high risk of developing inadequate self-regulation skills include children without a reliable primary caregiver, children of overburdened parents, children of impoverished and poorly-educated parents, and children who experience domestic violence or a lack of parental care and support, or who grow up in socially-disadvantaged neighbourhoods. For these risk groups, particular commitment must be shown – in the shape of active support programmes to encourage the development of self-regulatory competencies.

Longitudinal studies have shown that the experiences of early childhood have far-reaching implications for the later development of social, emotional and motivational competencies. Appropriate interventions aimed at fostering executive functions and skills in self-regulation should therefore take place as early as possible – i.e. for those attending preschool – and not solely for disadvantaged children. Institutional programmes should be used to actively promote support for individual socialisation. Awareness should be raised among both parents and teachers of the need to identify and promote self-regulation and, equally, to recognise and foster its corollary social, emotional and motivational competencies.

Consequences for educational policy

Attendance at a preschool educational facility supports a child's development in terms of both socioemotional and cognitive/performance-related aspects. Longer-term positive effects will depend primarily on teaching being of a high quality. The educational quality of day care facilities is defined above all by the process quality, i.e. the direct support processes available within the facilities themselves. Structural quality characteristics influence these processes, and these latter processes can be changed and improved by policy frameworks. In this context, key items to address will include making group sizes smaller, reducing the number of children cared for by each preschool educator, and improving basic/further training and continuing professional development for the facility's teaching staff. Note that the criteria in each case will vary by the children's age group.

An active support programme at the preschool stage, e.g. in day care, does not necessarily imply formal schooling. Actively supporting children's cognitive and emotional socialisation creates ideal educational opportunities for them at an early stage. This does not imply that these children are being moulded to

serve economical goals but, on the contrary, that individual chances can be seized. A common prejudice against nursery teaching often stems from misconceptions about playful and situated learning. Education in early childhood has little in common with conventional learning in the classroom. For example, encouraging multilingualism in nurseries does not mean that preschool children should start being given language classes. The presence of native speakers in a day care facility is quite sufficient to ensure children acquire a different language by (playful) interaction with one another.

The efficiency of educational investments can be increased by targeting their deployment, as long as segregatory effects can be avoided. Children from disadvantaged families in particular can benefit from education and care that is of a high quality. Accordingly, the German system of day care must also tackle the issue of providing enhanced support that is focused on specific target groups and/or urban districts.

Stronger involvement of families in educational/support programmes outside the home can boost the efficiency of these interventions. Evidence for high efficiency is demonstrable above all for educational programmes where parents are firmly "on board". One option for Germany might be the targeted expansion of day-care facilities into "Family Centres" or "Parent & Child Centres".

Educational choices are determined not only by differences in ability and performance due to a child's social background, but also by class-specific decision-making behaviour resulting from different values being placed on the costs and benefits of educational options. These factors need to be addressed by policy interventions. On the one hand, day-care facilities, full-time schools etc. should act to balance out a lack of potential for parental caregiving and support. For migrant populations, such interventions could make a major contribution to reducing linguistic deficiencies and establishing a level playing field for entry into the educational system. On the other hand, interventions should be funded to cut educational costs for low-income families and to raise awareness of the prospects for success offered by educational options.

Prevailing institutional conditions materially influence the educational options available to children and thus the reproduction of social inequality by the education system. More open – i.e. more porous – systems offer better chances of acquiring a higher level of education. More rigid systems involving early selection act to curtail the chances available to weaker social groups in particular.

Research desiderata

Current research shows that longitudinal studies organised over as long a period as possible provide an indispensable basis for understanding the complex, temporal interdependence of early experiences and behavioural characteristics in later life.

In contrast to work conducted by researchers in the UK and US, Germany has provided few representative longitudinal studies to date that are capable of mapping out the developmental trajectories of children into adolescence and adulthood, and which are available to the wider national and international scientific community. Recent years have seen the addition of new panel studies capable of filling this gap over the medium to long term. Several existing studies have also greatly expanded their childhood research focus. Nonetheless, on account of the specific methodological approaches to the respective data collection, these projects permit only limited statements to be made. They are therefore unable to replace further research on other specific topics.

While many questions about the relationship of early childhood experiences to individual development can be researched using epidemiological studies and the long-term collection of data, it should nonetheless be emphasised that convincing causal links and a clear understanding of the underlying processes is only possible by carrying out dedicated experiments. Since experimental interventions involving human subjects operate within very narrow bounds and must observe the most rigorous ethical standards, research must also consider the use of animal models. This is true in particular for research conducted on bases for development within molecular biology, genetics, neurophysiology and neuroanatomy – and their role in the expression of behavioural characteristics.

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