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The influence of nature and nurture on behavioural changes in the light of lifespan development perspectives

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Abstract
Needs are imposed by nature and wants are sold by society. Nature and Nurture plays a very vital role in development and behavioural changes. The aim of this research is to find out the influence of nature and nurture on behavioural changes in the light of lifespan development perspectives. For this purpose randomly selected eighty children from two different environments, family and hostel of Bilaspur district, Bilaspur, Chhattisgarh were divided into four groups - 1. Family, 2. Hostel, 3. Family and Hostel and 4. Control group. Pre and post scores on behavioural changes factors, rapidity of change in behaviour, behavioural change realization and response time were measured using flash cards, quizlets and reaction timers respectively. The difference between pre and post test scores of the four groups were statistically analysed and the results proved that there was significant improvement in rapidity of change in behaviour and behavioural change realisation ($P > 0.05$) and there was insignificant difference in behavioural change factor response time of the children. Thus, It was concluded that nurture undoubtedly plays a much more important role in early human development bringing about behavioural changes as in some way or the other nurture also speeds up an individual's capacity to study and learn new things.

Keywords: nature, nurture, behavioural change, lifespan development, behavioural change realization and response time

Introduction
Human development is an intricate lifelong process beginning before birth and extending to death; however, the common bond all humans have is basic life stages from birth to death. At each moment in life, every human being is in a state of personal evolution. Though no two human beings will have the same life experiences, there are certain predictable patterns that occur and are common to most everyone. How a person develops throughout their life depends on a blending of environmental experiences and biology. Nature and nurture intertwined even before we were born. Physical changes largely drive the process, as our cognitive abilities advance and decline in response to the brain's growth in childhood and reduced function in old age. Psychosocial development is also significantly influenced by physical growth, as our changing body and brain, together with our environment, shape our identity and our relationships with other people. As human beings progress from infancy to childhood to adolescence and then to adulthood, motor skills, imagination, desires and other thought processes become more refined and complex. Several theorists have attempted to identify the stages of cognitive and physical development, and in the process, have changed the way we think about the human body and mind.

The concept of nature thus refers to biologically inherited tendencies and abilities that people have and which may get revealed later on as they grow up. In contrast, nurture can be defined as the different environmental factors to which a person is subjected from birth to death.

Environmental factors involve many dimensions. They include both physical environments (a good example is prenatal nutrition) and social environments (such as the neighborhood, media and peer pressure.) Also, environmental factors have different levels of impact on human development as they involve multiple layers of action, ranging from most immediate (families, friends, and neighborhoods) to bigger societal contexts (school systems and local governments) as well as macro factors such as politics on the international level or say global warming. These layers are also impacted by other factors outside them. For example, teenagers are exposed to not just peer pressure from their peers but also to parental ideals, community standards or ethnic views.

The Influences of Nature and Nurture on Human Development
Nature is responsible for the growth of a person from the fetus level until development into a normal adult. The genetic makeup of a human being is responsible for their sex, skin color, color of their eyes and hair as well as distinguishing features which are inherited.

Nature can only assist in the growth of a fetus into a normal well-developed adult who may have inherited some special talents. Thus it can be concluded that nature uses the genetic coding to help in physical development and does impart some positive or negative traits to an individual. However, it is nurture which can be utilized to improve positive traits and diminish the effect of negative traits in a child.

Nature vs. Nurture - Genes and Environment
For many years, most scientists debated whether genes or environment were more important in a person's development.

In psychology and other sciences, this was known as the nature vs. nurture debate, where nature represents genes, and nurture represents environment.

Let's look at an example from Hilary and Heather, who were two friends. Remember that Hilary likes to play sports, but Heather would rather curl up with a good book. To someone who believes that nature (or genes) is most important, this is probably because Hilary inherited a gene that makes her good at sports, while Heather inherited the 'brainy' gene.

On the other hand, someone who believes that nurture (or environment) is most important might point out that Hilary was given special attention by her coaches, which made her better at sports. Heather, meanwhile, was always treated like the smart kid and challenged intellectually by the adults around her, so her environment bred her to be smart.

How do we know which is correct? It's impossible to tell, really. Imagine that Hilary's dad is a famous basketball player. On the surface, it might seem like Hilary is good at sports because it's in her genes. But wait! From an early age, she was exposed to basketball and other sports because her dad plays and watches them.

So, did Hilary inherit a gene from her father that makes her good at sports, or is she good at sports because she grew up in a house where she was exposed to them from an early age? It is indeed important to recognize that nature in the form of inherited traits does exist but a person's overall behavior is influenced a great deal by nurture or upbringing and the environmental factors involved in this upbringing. Several recent studies carried out on infant and child behavior have shown that there is significant evidence to support the fact that nurture strongly influences human development especially in the early years.

In traditional society most parents encourage their kids to take part in extracurricular activities like learning music, dance or sports in accordance with the child's talents and interests. The talents have been given by nature but they can only be developed into skills through the hard work of nurture.

Nurture - A Strong Influencing Factor in Early Human Development

Undoubtedly, nurture plays a very big role in early human development. Nurture in some way or another speeds up an individual's capacity to study and learn new things. There is the common saying that "practice makes perfect." Therefore, an individual can improve knowledge by practicing to adapt to all creations in these circumstances or environment.

The part which nurture plays in human development has been demonstrated by psychologists in experiments in which stepping practice was administered to a cohort of inference for just a few minutes many times in a day. It was later that these children were able to walk several days earlier than infants who had not been given stepping practice (Zalazo, Zelazo & Kolb, 1972.)

So, it is evident that nature is responsible for producing healthy, well-developed babies. It is also nurture that plays an important role in the early stages of human development. Research has concluded beyond doubt that early human development is quicker and more focused due to nurture as it builds up on the talents provided by nature.

Nature is responsible for the normal development of the fetus into a normal and healthy infant, but it cannot entirely develop that fetus into an intelligent, knowledgeable or athletic adult. This is possible only through the exposure that nurture gives a person. Therefore, it would be correct to say that although the nature has some degree of influence, nurture strongly influences early human development.

In this research paper the investigators were interested to find out whether nature or nurture or both nature and nurture influences behavioural changes in the development of a child.

Objective of the study

The objective of the study was to find out the influence of nature and nurture on behavioural changes in light of lifespan development perspectives.

Method and design

To achieve the purpose of the study, pre and post test random group research design was adopted and eighty children living in two different environments - 1. with the parents and 2. in a Hostel, were selected randomly from Bilaspur district, Bilaspur, Chhattisgarh were divided into four groups - 1. Family, 2. Hostel, 3. Family and Hostel and 4. Control group. Pre and post scores on behavioural changes factors, rapidity of change in behaviour, behavioural change realization and response time were measured using flash cards, quizlets and reactions timers respectively.

Table 1: Experimental Design for Behaviour Change factor, Rapidity of Change in behaviour, Behavioral change realization and response time

Group		Treatment	Duration	Interval	Repetition
I	Children with Parents	Questionnaire of 50 questions	2 hours	4 Minutes	Twice
		Flash 40 cards	40 Minutes	4 Minutes	Twice
II	Children in Hostel	Questionnaire of 50 questions	2 hours	4 Minutes	Twice
		Flash 40 cards	40 Minutes	4 Minutes	Twice
III	Group I & II combined	Questionnaire of 50 questions	1 hours	2 Minutes	Twice
				2 Minutes	Twice
		Flash 40 cards	40 Minutes	2 Minutes	Twice
				2 Minutes	Twice
IV	Control Group	No treatment given			

Results and Findings

The data collected from the four groups were statistically examined by applying analysis of co-variance (ANCOVA) in all the cases. To test the significance, 0.05 level of confidence was fixed. Since four groups were involved, whenever significant results were found, Scheffe's post-hoc test was used to find out the significant difference between the paired of groups.

Table 2: Results of Calculation of Co-variance on Behavioural Changes Factors Results on Behavioural Change due to Experimental Treatment

Test	Group-I Family	Group-II Hostel	Group-I & II Combined	Control Group	Source of Variance	Sum of Squares	df mean squares	Obtained F
Pre Test	8.16	9.73	8.21	8.5	Between	12.10	315.05	
Mean								8.45*
Std. Dev.	0.63	1.15	0.68	0.62	Within	20.42	314.92	
Post Test	8.79	8.85	6.38	8.4	Between	10.75	272.45	
Mean								9.96*
Std. Dev.	0.73	0.93	0.52	0.54	Within	14.82	274.73	
Adjusted	8.46	8.17	7.91	8.7	Between	8.46	311.18	
Post Test					Within	3.43	340.04	
Mean								17.77*
Mean Diff.	0.49	0.94	0.72	0.09				

Table 3: Results on Rapidity of change in behaviour due to Experimental Treatment

Test	Group-I Family	Group-II Hostel	Group-I & II Combined	Control Group	Source of Variance	Sum of Squares	df mean squares	Obtained F
Pre Test	261.30	264.30	265.80	260.8	Between	172.50	357.50	
Mean								0.35
Std. Dev.	15.68	14.06	9.57	10.64	Within	5835.40	36162.09	
Post Test	256.30	263.10	256.80	260.6	Between	313.40	3104.47	
Mean								0.87
Std. Dev.	12.65	13.27	7.39	9.43	Within	4317.00	36119.92	
Adjusted	257.77	262.05	254.49	262.5	Between	427.92	3142.64	
Plost Test					Within	214.88	356.14	23.23*
Mean								
Mean Diff.	5.00	1.20	9.00	0.20				

Table 4: Results on Behavioural change Realization and Response time due to Experimental Treatment

Test	Group-I Family	Group-II Hostel	Group-I & II Combined	Control Group	Source of Variance	Sum of Squares	df mean squares	Obtained F
Pre Test	0.451	0.515	0.465	0.466	Between	0.24	30.008	
Mean								0.803
Std. Dev.	0.071	0.076	0.119	0.119	Within	0.352	360.010	
Post Test	0.443	0.504	0.438	0.462	Between	0.027	30.009	
Mean								0.742
Std. Dev.	0.096	0.099	0.120	0.125	Within	0.442	360.012	
Adjusted	0.469	0.460	0.448	0.470	Between	0.003	30.001	
Post Test					Within	0.028	350.001	1.338
Mean								
Mean Diff.	0.008	0.011	0.027	0.005				

Required F (0.05)(3.36) = 2.838, F (0.05) (3.35) = 2.838 *Significant.

Paired means, Mean Difference and the influence of Nature on rapidity of change in behaviour due to Children staying in their own Family.

Table 5: Multiple comparisons of paired means using Scheffe's Post-Hoc Analysis

Group-I	Group-II	Group-III	Group-IV	Mean Diff.	Required CI
8.46	8.17			0.29	0.33
8.46		7.91		0.55*	0.33
8.46			8.70	0.24	0.33
		7.91		0.26	0.33
			8.70	0.53*	0.33
		7.91	8.70	0.79*	0.33

Paired means, Mean Difference and the influence of Nurture on behaviour change realization of children due to staying in a Hostel.

Table 6

Group-I	Group-II	Group-III	Group-IV	Mean Diff.	Required CI
257.77	262.05			4.28*	3.19
257.77	262.05	254.49		3.27*	3.19
257.77	262.05		262.49	4.72*	3.19
		254.49		7.56*	3.19
			262.49	0.43	3.19
		254.49	262.49	7.99*	3.19

*Significant at 0.05 level.

The results proved that the adjusted mean differences on the fifty point questionnaire among the groups was significant as the obtained F value 17.77 was greater than the required table F value of 2.838. The adjusted mean differences for behavioural change realization measured through flash cards and questionnaire among the groups was significant as the obtained F value 23.23 was greater than the required table value, to be significant. However, it was found that there was no significant difference in the response time among the groups due to experimental treatment as the obtained F value of 1.338 was lesser than the required F value to be significant at 0.05 level.

Conclusion

Characteristics and differences that are not observable at birth, but which emerge later in life, are regarded as the product of maturation. That is to say we all have an inner "biological clock" which switches on (or off) types of behavior in a pre programmed way.

At the other end of the spectrum are the environmentalists - also known as empiricists (not to be confused with the other empirical / scientific approach). Their basic assumption is that at birth the human mind is a tabula rasa (a blank slate) and that this is gradually "filled" as a result of experience (e.g. behaviorism).

From this point of view psychological characteristics and behavioral differences that emerge through infancy and childhood are the result of learning. It is how you are brought up (nurture) that governs the psychologically significant aspects of child development and the concept of maturation applies only to the biological.

For example, when an infant forms an attachment it is responding to the love and attention it has received, language comes from imitating the speech of others and cognitive development depends on the degree of stimulation in the environment and, more broadly, on the civilization within which the child is reared.

It is accepted now that heredity and the environment do not act independently. Both nature and nurture are essential for any behaviour, and it cannot be said that a particular behaviour is genetic and another is environmental. It is impossible to separate the two influences as well as illogical as nature and nurture do not operate in a separate way but interact in a complex manner. But nurture refers to our childhood or how we are brought up. In this study, the children who were brought up in a hostel from childhood were born with genes of a normal height yet they were stunted. Though some children belonged to backward family yet they behaved well in the environment of a Hostel. Not only biological and family factors influence behaviour, but also social and environmental factors influence behaviour which we call nurture.

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