
The Father Of Evolution Charles Darwin, His Life And Contributions

Charles Darwin (1809-1882) was a naturalist who was responsible for one of the most well-known scientific discoveries in human lifetime, the theory of evolution. Evolution is the theory that all species are related through common ancestors and that through certain natural processes in the environment, organisms have changed and evolved to what they are now. Through his lifelong work on evolution and the many theories that he is responsible for, he changed how people saw the world, which is still relevant today. These theories such as natural selection, sexual selection and those on human emotions and expressions, help to explain how and why nature is constantly evolving and changing the way that it does. Darwin's work can be seen in many forms of psychology today and his numerous studies and observations of domesticated and wild animals, plants, his own children and even that of geology is quite influential. Some of the most prominent areas of modern psychology that Darwin has influenced include that of evolutionary psychology, developmental psychology, comparative psychology, and behaviourism.

Darwin was born 1809 in Shrewsbury, England and was one of 6 children to Robert and Susannah Darwin. Darwin was never very good at school, but due to being born to a wealthy family and having a well-respected physician as a father, he was sent to medical school at the age of 16. He however was not interested in this profession and was sent to Cambridge university, to earn a degree so he would be able to become an Anglican clergyman. While attending university in Cambridge, Darwin discovered his passion for entomology and science. Darwin's true journey started however when he boarded the 5-year long expedition on the HMS Beagle. Darwin explored many different countries, continents and islands on his journey, including that of south America, Tahiti, New Zealand, Australia, and most well-known, the Galapagos islands. Over Darwin's expedition he studied many different species of flora and fauna, as well as geological and fossil formations.

After returning back home in England, Darwin could not explain his findings with a general principle until he read prior research done by that of the Anglican clergyman, Thomas Malthus. Darwin not long after returning from his expedition married his cousin Emma Wedgwood and had 10 children, with the first child closely observed by Darwin and his findings going on being the beginnings of developmental psychology. He however later in life suffered through years of unexplainable health issues and felt that as his theories of evolution were become more thorough, his health was too getting worse. At this time, over 20 years after his voyage, he still had not published his findings from his expedition of the HMS Beagle. This was until Darwin retrieved notice from that of Alfred Russell Wallace, who had a very similar theory to him on that of evolution and was ready to publish. Darwin and Wallace then both published papers to the Linnaean society, however both papers received little attention. Darwin's later papers however such as that of origin of species by means of natural selection received much more interest. Although there were many debates over authenticity of Darwin's theory, there were those who were loyal to Darwin who defended his theory, such as that of his friend Thomson Henry Huxley. Many arguments against Darwin's theory were due to views of the church and that of the bible. Darwin died in 1882, at the age of 73, with mostly positive views to his name.

Contribution 1: Natural Selection

Darwin work on evolution and the many theories that go along with were truly revolutionary for the time, however, not all credit can be given to him solely. Although Darwin had early views and opinions on evolution after his expedition and had gathered all his finding, he still however did not have concrete explanation for what he had found. This was until he read Thomas Malthus's An essay on the principle of evolution in which he talked about what he called "struggles for existence" in which space and food will increase arithmetically while population increase geometrically. By this Malthus meant that as populations continue to breed and increase in size, food sources and areas will become smaller and therefore the struggle for survival will be much larger to obtain. Factors however such as war, sickness and poverty generally slow this down though, as there will be less people competing for survival.

Darwin incorporated this theory by Malthus into his own finding on plants, animals and even humans. Through this struggle of survival, Darwin spoke about how individual members in a species will have differences that may of may not increase their chances of survival. These species that had the best qualities (bigger beaks for cracking open food or skin anomalies for camouflage) resulted in them living longer and this process was considered to be "natural selection" or as Darwin later referred to it as "the survival of the fittest". Through this process Darwin coined certain terms such as that of 'fitness' and 'adaptive features'. Fitness was referred to as a species ability to survive and reproduce, while adaptive features were the features that organisms would develop that would them to survive in an environment. Some of Darwin's most prominent findings were on that of the finches he encountered on the Galapagos islands. Darwin found that among these islands, similar species of finishes had subtle differences. These differences included their beak sizes in which some of them were tree-dwelling and others were ground-dwelling and therefore their beaks evolved depending on their diets. This included some evolving sharper-long beaks for digging out bugs and insects, while other had large-strong beaks for breaking open hard seeds. Even since Darwin's findings back in the 1930's, many of the species he observed have since went extinct due to them not have the most effective adaptive features to survive.

Contribution 2: Sexual Selection

In congruence with natural selection, Darwin also introduced the concept of 'sexual selection'. Sexual selection looks at how organism compete partners to reproduce with and create offspring. Sexual selection differs to natural selection in the way that organism develop traits that may increase their chance of reproduction, while also decreasing their chance of survival. In this sense, the species desire to procreate and bear offspring, is more important than them living a long life. Darwin divided Sexual selection into two main concepts, with that being 'intrasexual selection' (male combat) and 'intersexual selection' (female choice). Intrasexual selection is the competition that arises between mostly males of a species to fight over who gets to reproduce and possess the most females of the species. In this context, the contender that has the best 'weapons' to help them win in battle against others of the same sex in a species, will get to reproduce with the most females.

These developed weapons that could help them win in competition could be them being larger in size, having longer horns or sharper teeth. However, intrasexual selection does not always determine which member of species will get to mate with most of the opposite sex. Darwin found that intersexual selection was also just as important. This type of selection looks at how

choice (mostly female) plays a huge factor in which member from a species gets to reproduce. These choices can be seen in many different species, such as in birds in which their singing, striking colour patterns or decorative nests may determine whether a member from the other sex will choose to mate with them. Many others at the time of Darwin's observation did not agree with that of intersexual selection and felt that animals did not care about choice when reproducing. Darwin however did not provide a hypothesis for female choice, and it wasn't until 1958 in which Ronald Fisher further elaborated on Darwin theory to demonstrate the importance of choice in mate selection. Fisher believed that females will choose a mate depending on what they provide, such as ability to protect the offspring.

Contribution 3: Emotions and Facial Expressions

Although Darwin is mostly well known for his work on natural selection and its evolution, he also published many findings on that of the evolution of human emotion. Most of Darwin's work on this was published in his book, *The Expression of the Emotions in Man and Animals*, where he talked passionately about that of human emotions and facial expressions. Darwin treated different emotions as if they were all different discrete entities, such as that of anger, fear, joy, disgust or love. Although Darwin didn't explain factors such as intensity, acceptability, or variations within emotions, his views are still generally well supported. As well as this, Darwin also went on to explain how facial expression were quite universal for humans in explaining emotions. Although his findings didn't necessarily support his views for evolution, they did however go against opinions of others who felt as though Europeans were evolved from more advanced ancestors than that of Africans.

This however did not also transfer over to gestures, as Darwin found that gestures were indeed culture specific, and different hand gestures would often have different meanings in different areas of the world. One of Darwin's most interesting findings about emotions is that they are not just specific to humans, and in fact many animals also experience them. When describing why animals expressed certain emotions, Darwin has three principles to explain this. The first one of these he called 'serviceable habits', and they are the actions that serve a useful to the individual such as when a dog lifts their upper lip to show their teeth and demonstrate their anger. Darwin's second principle was named 'antithesis' in which the animal will display the opposite action of what they are not feeling. An example of this is when an animal will make themselves smaller to show their affection rather than making themselves larger which would demonstrate aggressiveness. The final principle Darwin referred to as 'the direct action of the nervous system', which is any action or expression that could not be explained by the prior two principles.

Influence on Modern Psychology

Due to the many theories set about people and the natural world, Darwin had a huge influence on what psychology is today. Darwin's influence can be seen in many different forms of psychology, from that of evolutionary psychology to that of developmental and comparative psychology.

Evolutionary psychology is heavily based on that of natural and sexual selection and thanks to the work Darwin did on these concepts, these behaviours are now well understood in the natural world. As well as this, Darwin work was also important in understanding sexual differences and how men and women psychologically differ. Although many theories such as

particular inheritance, inclusive fitness and genetic differences were expanded after Darwin's discoveries, without his work, none of it would have been possible at all. Darwin's theory of sexual selection is still relevant today as for most animals species, males do not provide resources for their offspring, while in humans it is a cultural norm for both male and females to provide for their offspring together.

For this reasons humans tend to choose partners who they feel as though they will receive the most resources and satisfaction from. Evolutionary processes can also be seen in domain-specific mechanisms and how humans may be more developed to do tasks such as learning language and recognising faces, while other species are more concerned with natural processes such as locating food and learning mating rituals. Many psychological theories and concepts that are involved in relationships, conflicts, sexuality, mating and so on, are still being examined today in modern evolutionary psychology. Work done in the past on the emotional and communicative factors of the brain and other evolutionary components are crucial for future findings in evolutionary psychology.

Darwin's work has also been found to influence that of developmental psychology. This has been observed in his paper in which he documented the development of innate forms of communication in his young son. Darwin observed that when it came to reflexes children did not learn to do tasks such as blowing their nose till later in childhood, yet they could do this instinctively if needed. Darwin described this as 'gradualism' which was the developing from instinctual movements to learned behaviour. He also theorised that children will develop expression of tone before they will develop appropriate verbal expressions when trying to express their feelings or desires. When referring to the development of animals, Darwin believed that the ability of associating stimuli such as sounds and ideas together required high mental power, and that due to development of the human brain, we have a much more complex communicative system.

When it comes to comparative psychology, Darwin's influence can be seen in many different areas. Darwin often argued for the belief that humans and nonhumans animals all shared common ancestors and that many behavioural traits and emotions that were thought to be unique to humans, are often found in other species. These findings are evident in Darwin's observations of animal expression and how they share very similar emotions and principles to that of humans, such as serviceable habits and antithesis. In modern comparative psychology, Darwin influence can be traced back to when he performed experiments on domesticated animals to study their psychological traits and signs of animal intelligence. Many findings and studies that have been done on animals such as that done by Pavlov, Skinner, Thorndike and many others, may not have been as successful as they were, if it wasn't for the influence and early studies done by Darwin.

Conclusion

In conclusion, the influence that Darwin has had on the modern world is on par with those such as Isaac Newton and Nicholas Copernicus. Darwin truly changed the way people see the world in a time when his theory was truly revolutionary. Although there were those such as Malthus and Wallace who also deserve credit for their contribution to the discovery of evolution, none are more deserving than Darwin. Darwin's work on the theories of natural selection and sexual selection changed how humans saw the natural world. They explained how species change over time and how the fittest will survive and reproduce, while the weakest will die and make

way for new offspring. these theories helped to explain links between humans and animals and how we are not all that different after all. These findings can be seen in Darwin's work on emotions and facial expressions in species, in which would initiate decades of research that extend from his principles and still continue today. Darwin's influence can be seen in many different disciplines, such as that of biology, anthropology, geology and psychology. The most prominent areas of psychology that Darwin has impacted include that of evolutionary psychology, development psychology, and comparative psychology. Darwin has had an influence on this world that he would have never been able to imagine, and his work will continue to change the world for many years to come.

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