



# Psychology: Multiple Perspectives Searching for a Unified Theory?

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## Abstract

In this review we examine psychology's early beginnings, tracing the influence of Greek philosophers through to the different schools of thought, each with their own research methods and theoretical dogma. Structuralism, functionalism, behaviourism, Gestalt psychology and psychoanalysis were all popular approaches, and each provided in their own way the backbone for what psychology became, what and how it should be researched and how findings should be interpreted. Here we consider how these schools continue to contribute to the development of the current subareas of psychology. While the common goal of these approaches is to try and explain human behaviour, currently as an academic discipline, psychology lacks a unifying theory. We suggest here that in its first thirty years evolutionary psychology is already showing the potential to become this unifying framework for psychology.

**Keywords:** Evolutionary Psychology; Theoretical Dogma; Human behaviour

## Psychology's Origins

Psychology is a complex mix of different approaches to understanding human behaviour which, in part, arises out of its philosophical roots. These philosophical roots can be traced back to the Ancient Greek thinkers such as Socrates (469-399 B.C.), Plato (427-347 B.C.) and Aristotle (385-322 B.C.). Socrates' contributions towards psychology included reflections about the human soul; ethics, morals and inductive reasoning to explain human behaviour; constructivism and the use of confrontation to expedite contradictions in knowledge [1]. Plato claimed that knowledge originates from our reasoning about our sensations. He spoke of 'forms' that are structures which organise the world and are measured through geometry, which, in turn, increases the accuracy of world knowledge via deductive reasoning. He mooted the question of whether the human psyche could be measured

in the same way as the world can be [1]. Aristotle, however, combined a deductive reasoning approach to thinking with an inductive observational approach. He is renowned for his thesis on logical deductive thought based on assumptions and definition. Leary [2] highlighted how Aristotle introduced many metaphors for the human mind which continue to be explored in modern psychology (e.g., in theory construction, research and the mind). It was Aristotle who introduced the notion of an infant's mind at birth as a blank slate which was later referred to as a tabula rasa by John Locke. Here, the infant's mind is regarded as a blank slate where knowledge, acquired through interacting with the environment, is written onto it.

The observation of newborn behaviours, in particular their inability to show any evidence of precocious behaviour, led early psychologists to conclude that they rely completely on

parental nurturance. This perception of infants prevailed as a dominant view until innovations in research design, coupled with developments in scientific technology, etched away at the limitations of mere observation and behavioural notation. Within the study of infant development alone, the contributions of biological and neurocognitive psychology as well as evolutionary psychology have helped to expand our understanding of the level of infant competency present prenatally, perinatally and postnatally. The seemingly opposing approaches of a competent newborn versus a blank slate ideology arise out of a nature-nurture dichotomy which itself can be accounted for using a variety of philosophical perspectives. These philosophical perspectives are the backbone of multiple independent but interdependent approaches co-existing within contemporary psychology. We argue that interdependency is essential in the development of a unified psychology. While this is important it is not enough to provide a unified approach to psychology. We firmly believe that the rapidly emerging field of evolutionary psychology will provide this much needed integration. We will return to this argument at the end of this review.

When we consider psychology what do we see? Is it really a fragmented discipline or a discipline presenting many options but with a common objective? The research approach in psychology thrives by building upon the work of others in an attempt to understand human thought and

behaviour. There might not be one agreed upon explanation of human behaviour but is this a result of the complexities of human thought and behaviour as much as it is a consequence of different approaches inherent within psychology itself. To understand the apparent divisions within psychology we need to consider the history of its development.

### The Founding Schools of Academic Psychology

In its infancy, psychology was establishing itself as a discipline with a set objective and methodology derived from a variety of different schools such as structuralism, functionalism, behaviourism, Gestalt psychology and psychoanalysis. Within these there was divided opinion as to what psychologists should be studying and how its subject matter should be investigated. It isn't surprising that opinion was divided. The method of study arose from a conglomeration of these schools of thought, which, in turn, were rooted in diverse philosophical ideologies. It is these philosophical ideologies which impacted on what the different schools of thought understood psychology to be. To understand the profound influence the different schools had in the development of psychology we need to be familiar with these. Psychology owes its development to five schools of thought (Table 1). We will consider these schools in turn with the exception of psychoanalysis which will be considered later in relation to therapeutic intervention.

Name of School	Key Figure	Subject Matter
<b>Structuralism</b>	Wilhelm Wundt (1832-1920)	Basic elements as the structure of the conscious mind, sensation, perception, attention, feelings, reactions and associations.
<b>Functionalism</b>	William James (1842-1910)	Mental processes directing function of the nervous system in response to actions or behaviours performed. Conscious choice versus habit.
<b>Behaviourism</b>	John Watson (1878-1958)	Overt behaviour - ignore the mind, behaviour as stimulus-response connections learned through conditioning.
<b>Gestalt Psychology</b>	Max Wertheimer (1880-1943)	Perception and mental processing <i>per se</i> occurs as 'wholes' or Gestalt and not as basic elements; apparent motion as the psi phenomenon; insight.
<b>Psychoanalysis</b>	Sigmund Freud (1856-1939)	Personality (id, ego, superego); motivations and drives; child development and abnormal psychology. Contribution mainly to therapeutic intervention.

**Table 1:** The five influential schools of thought.

### Structuralism

German born Wilhelm Wundt is considered as the first person to define psychology. Wundt's understanding of what psychology should be, originates from his notion of structure psychology or structuralism. In his book 'Principles

of Physiological Psychology' in 1874 [3] he established psychology as a science – setting up the first psychological laboratory Leipzig, Germany in 1879. He created a methodology using self-observation known as introspection. Wundt distinguished between immediate and mediate experience. Immediate experiences, according to Wundt,

are a series of subjective processes which can be accessed through introspection which is considered to be an internal perception. An example of the difference between the two is as follows: when we say a flower is yellow, the immediate experience pertains to the experience of seeing the colour yellow and not the label of flower. The immediate experience is free from the overarching higher level of interpretation that we add to our experiences of objects (i.e. mediate experience). The method of introspection used by Wundt is applied in a vigorous experimental manner. Through the use of introspection Wundt tried to break-down immediate experiences into basic elements. These elements comprised the structure of immediate experiences. Conscious processing therefore was composed of interconnecting (or associated) elements that would bring to the fore other ideas resulting in further connections. Edward Titchener [4] expanded on his ideas and introduced structuralism to New York. Titchener introduced three elements of the mind: sensations or elements of perception; affection or elements of emotions and images or elements of ideas. He further stated that these elements interact in different ways to form conscious experiences. The influence of structuralism dissipated on the death of Titchener [5]. Despite this, the Society of Experimental Psychologists founded by Titchener in 1904, has made an impact on the notion of an experimental approach to studying the human mind.

### Functionalism

Functionalism is considered to be a reaction to the limitations of structuralism. It is concerned with how the mind functions but more specifically how mental processes and behaviours enable an organism to adapt to the requirements of its environment. In other words, the importance of the evolution of human behaviour as a means to enabling individuals to adapt to their surroundings by performing essential functions. It is not surprising therefore that there are strong influences from biology. Moreover, functionalism, to a large degree, was influenced by Darwin's theory of evolution [6]. William James, although not the founder of functionalism, reflected functionalist thought in 'The Principles of Psychology' published in 1890 [7]. Mental processes are there to enable animals to adapt to the natural world, and cognitive structures process information – but why they operate in the way they do was the focus of functionalism. James spoke of a 'stream of consciousness' where our experiences would flow and change. He distinguished between conscious choice and habit – defining habit as an involuntary and non-conscious process. Introspection was also used by James, however, functionalists generally used test-oriented approaches such as those introduced by James Cattell (reaction-time (RT) and individual differences in reading and perception, intelligence testing) and Alfred Binet (intelligence testing). Functionalists

also introduced other areas of study to psychology such as:

- An educational approach of 'learn by doing'
- Three components of behaviour – the motivating stimulus, perceived interpretation and response
- Social psychology and meanings encapsulated in language use
- Trial-and-error learning

### Behaviourism

For behaviourists the only way forward was to adopt a mechanistic (i.e. use of physical and biological facts to explain mind and behaviour), materialistic (i.e. use of physical matter to explain mind and behaviour) and positivistic (i.e. use of scientific evidence to explain mind and behaviour) stance to understanding how we behaviour. Behaviourists believed that only the material world exists but that even the brain is mere physical matter. Therefore, consciousness or the mind is an epiphenomenon of brain activity. John Watson founded behaviourism in his 1913 publication [8], 'Psychology as the Behaviorist Views it.' Watson supported an extreme environmentalist approach to learning, personality development and child psychology. Psychology, for Watson, should be concerned with human and animal behaviour – to predict, control and ascertain laws about behaviour. Behaviour consists of stimulus-response connections which could be inborn or learned through conditioning. He demonstrated this by conditioning Little Albert (an infant) to fear a white rabbit and other similar furry objects by striking a bar to create a loud noise every time Albert patted the rabbit. The noise frightened Albert and became associated with the rabbit. Watson's conditioning became known as classical conditioning which had its roots in the research carried out by Ivan Pavlov [9] who conditioned dogs to salivate to the sounding of a bell using a classical conditioning approach. Burrhus Skinner [10] also contributed to behaviourism in the form of operant conditioning where animals such as laboratory rats can learn to associate their actions with reward. The pressing of a lever in exchange for food pellets has become synonymous with operant conditioning.

### Gestalt Psychology

While structuralism sought to find the mental elements of immediate experience, Gestalt psychologists argued that it is a futile exercise to decompose 'wholes' into constituent parts – it is artificial and reveals very little about how the mind operates. Gestalt is a German word meaning 'whole.' Experiences should merely be described and not analysed. This is because mental processes provide form-quality to sensory elements and cannot be studied. Max Wertheimer [11], one of three founders, led the Gestalt movement and was against the existence of basic elements. Gestalt

psychology began in 1910 with the advent of studies of apparent motion, in particular the phi phenomenon where two separate flashing lights interact to give the impression of motion – the whole experience is the sum of its parts. Other important contributions include ‘insight’ where solutions to a problem surface without the need for trial and error. The famous example is the ‘aha’ experiment where a caged chimpanzee had insight to use a smaller stick to retrieve a larger stick that could then be used to reach a banana outside of its normal reach.

### Subareas Replace the Schools

The original five founding schools of psychology have largely been integrated into the different subareas currently operating within recognised curricula of psychology undergraduate degrees. Interestingly, however, with the cognitive revolution emerging during the 1950s in response to behaviourism, cognitive psychology (especially from the 1970s) is considered by some psychologists as a ‘modern’ school of thought [12]. As with the schools discussed earlier, cognitive psychology has developed its own methodology and subject specific dogma. It is through cognitive psychology that other areas have arisen such as Albert Bandura’s social learning theory in 1977 [13]. This is an amalgamation of cognitive psychology and behaviourism. This doctrine accounts for the acquisition of new learned behaviours, attitudes and belief systems through the observation, imitation and modelling on others. It should be noted that humanistic psychology, which emphasises the uniqueness of each individual, has also received recognition as a ‘modern’ school of thought [12]. We will, however, consider cognitive and humanistic psychology as subareas of psychology. Current psychology is divided into many different subareas (Table 2) some of which have their own journals, conferences and meetings.

Furthermore, these subareas have their own research dogmas reflecting the subject matter of interest. This means that cognitive psychology, for example, follows a research methodology that uses an experimental approach (quantitative method) contrasting with open-ended interviews more likely to be used by counselling psychologists (qualitative method). Different types of problems addressed among the subareas within psychology create a sense of individualism. The origins of what appears to be separatism can be traced back historically to the different schools of psychology, each with their own theoretical interests and research methodologies but at the same time reacting against and evolving from each other. These different schools, however, helped to create psychology. The subareas within current psychology differ superficially but are united in their goal of understanding human behaviour. So, in what ways can we see the influence of these schools in modern

psychology?

Subareas of Psychology
Abnormal Psychology
Applied Psychology
Biopsychology
Clinical Psychology
Cognitive Psychology
Comparative Psychology
Consumer Psychology
Counselling Psychology
Developmental Psychology
Educational Psychology
Environmental Psychology
Evolutionary Psychology
Experimental Psychology
Forensic Psychology
Health Psychology
Human Factors Psychology
Humanistic Psychology
Individual Differences
Industrial-Organisational Psychology
Neurocognitive Psychology
Social Psychology
Sports Psychology

**Table 2:** A selection of subareas of psychology.

### Structuralism in Modern Psychology

The scientific standards of the experimental approach in modern psychology are very different to those proposed by either Wundt or Titchener. The use of introspection is regarded as an unreliable experimental method and the focus on studying internal behaviour is considered difficult to observe directly by adopting the methods used by structuralists. But these topics are no longer off limits when we consider the technological advances made in the 20th and 21st centuries. Moreover, structuralism was concerned with breaking-down mental processes into basic components construed as being a part of consciousness. Consciousness, along with metacognition (the ability to reflect about events using processes involving planning and assessing), is very much an integral topic within cognitive psychology. Gamez [14], for example, believes that first person reporting is the only way of measuring consciousness

– a bit like introspection! In common with structuralism this too has the problem of accuracy in verbalising essentially non-reportable elements inherent in consciousness. “Much of our conscious experiences appear to be lost in translation due to being unreportable” [15]. Interestingly, Lamme [16] argues that we rely on cognitive processes such as mentation, attention and memory to report our conscious experiences. These, however, can typically interfere with the verbalisation of our conscious recollections which act as limiting factors and not our conscious experiences per se.

Progress, in terms of access to our conscious experience, has been made by using behavioural measures. Sperling [17] pioneered this approach by presenting a three-by-four array of letters for 50 milliseconds to participants. They would typically report four-to-five letters, but Sperling found that if they were cued-to-recall, most participants could recollect all the letters presented. Since Sperling there have been a plethora of experiments using this approach. Despite this, progress using behavioural measures to report conscious experience can be fallible which is why cognitive psychologists have resorted to using brain activity indicators.

In terms of brain activity there are two ways that information can be processed ‘bottom-up’ and ‘top-down’ processing. As information is processed by flowing from neuron-to-neuron in a feed forward basis, this information therefore progresses in a bottom-up basis. Bottom-up processing is defined as, “Incoming stimuli from our sensory organs initiate processing. These stimuli are passed on for further processing to higher ordered cells...data-driven processing” [15]. Information can also be of a feedback nature or top-down. “...top-down works to process and interpret stimuli using existing knowledge. This acts as a fast-route to understanding stimuli...conceptually-driven processing” (ibid p.263). According to Lamme [16] it is top-down processing that is involved in conscious experience – the passing of information from higher to lower areas of the brain due to feedback processing.

But what of unconscious patients such as those in a vegetative state (VS) and those in a minimally conscious state (MCS)? These patients are considered to be non-responsive and unaware of their surroundings. Using measures of brain activity, in this case event-related potentials (ERPs), Boly, et al. [18] showed that feedback processing was disrupted in VS and MCS patients but not in healthy controls. Interestingly, ERPs could be used to differentiate the level of consciousness between VS and MCS patients, with evidence supporting consciousness in MCS individuals.

It is interesting to note that this line of inquiry into consciousness derived from the rudimentary experimentation resulting from Wundt’s work.

## Functionalism in Modern Psychology

Functionalism in psychology is very much ‘alive and kicking’. The strengths of functionalism include:

- holistic analysis (i.e. how groups of elements work together and influence cognition and behaviour)
- adaptation (i.e. behavioural adaptability enabling survival in settings creating challenges and advantages)
- practical application (i.e. considering applied applications to problem-solving ability to learn rather than relying on theory alone)
- ecological validity (i.e. exploration of behaviour under naturalistic environments to provide real-life application).

We can see in psychology today that much behaviour has been explored in terms of their survival value. Behaviours such as hunger, sleep and fear have been investigated using the premise of what do these actions serve for the individual. Hence hunger signals a need to eat to provide the substances required to enable our body to work efficiently. Sleep allows us to restore our energy levels enabling optimal cogent processing during wakefulness. Fear provides the signal to be wary of potential danger which then shapes our response to the threat evoking stimulus. The need for sexual attraction is another area addressed. This encapsulates a series of actions leading towards mate selection. These behaviours are clearly geared towards survival and reproduction. But there are other areas where functionalism has moved our understanding of cognitive and social psychology along. For example, the need to retain information via memory processes enables us to ultimately recall previous successful problem-solving and decision-making strategies. This further links with the advantage of having selective attention skills. We need goal-directed focus of attention to enable us to discern, remember and learn what information is salient and pertinent for future reference. There are other examples such as the process of socialisation and communication which help to fine-tune our social skills to enable successful interpersonal relationships, to develop self-expression and emotional regulation. Laughter links here too as it promotes social bonding with others.

In relation to selective attention there have been many experiments conducted in the laboratory and under naturalistic settings. Here we will focus on selective attention given its importance for consciousness. Colin Cherry [19] observed that in natural settings where many people congregated in smaller groups it was possible to tune into another group’s conversation when a pertinent word for the individual concerned was mentioned such as one’s name, despite the content of conversation being inaudible. Cherry referred to this as the ‘Cocktail Party Effect’. He later investigated this phenomenon through experimentation in a

series of studies using 'dichotic listening'. Here, headphones are worn by participants who hear two different spoken messages. The left ear is presented with one message while the right ear is presented with another. Participants are instructed to shadow (repeat what is said out loud) the message of the right or the left ear. On completion of the task, participants are asked about the unattended message (non-shadowed). Questions asked about the unattended message can be simple such as the sex of the voice or complex such as the meaning of the spoken language. Very little information, other than physical attributes (sex of the voice heard) were discerned from the unattended message. This finding led to numerous filter models highlighting how selective attention operates. The consensus is that a top-down processing strategy operates where focused attention influences what is attended to, perceived and recalled. McDermott [20] argued that when there is more than one potential message to process it is the message with the most dominant presence which is fully processed, and this is achieved through bottom-up processing. This makes perfect sense when we think about how a newborn understands and learns about its environment.

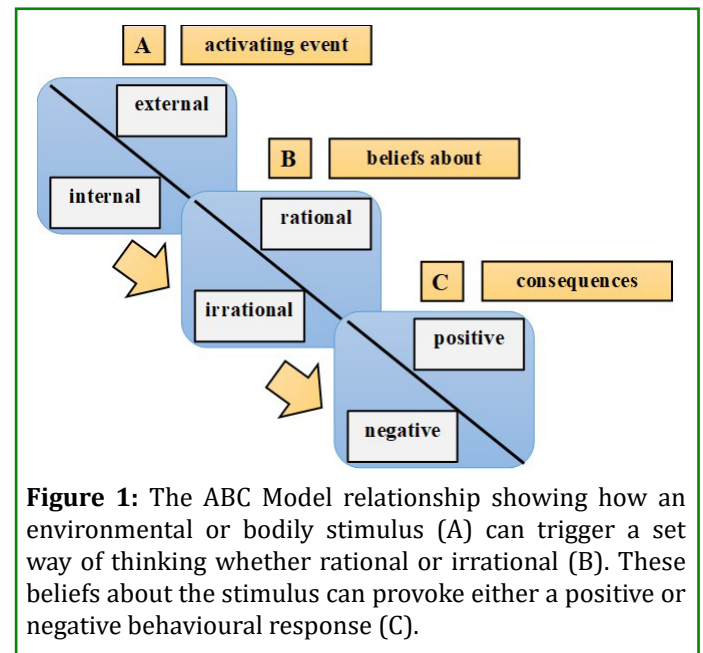
Another area arising from the outlook of the structuralists is testing intelligence. Early work on reaction time and individual differences in reading, perception and mental tests can be attributed to the work of James Cattell [21]. Cattell tried to measure the range and variability of mental capacity via intelligence tests. These tests considered bodily or sensory-motor measures such as the rate of movement of the hand; distance at which sensation of a pin-prick can be felt on the skin; amount of pressure needed to cause pain; just noticeable difference: for reaction time to hear sound, name colors, judge a 10 second period of time and the number of letters remembered after one presentation.

Cattell, however, was disappointed by the low correlation between data for such measures and academic performance. It appears that these tests were not valid predictors of intellectual ability, but the ideas for testing intelligence were eventually successfully incorporated by Binet. Binet and Simon [22] developed the standard IQ test. Even to this day we use IQ tests which have been modified as standard definitions of intelligence have evolved. The most renowned tests are the Stanford-Binet Intelligence Scale; Wechsler Adult Intelligence Scale and The Gardner Multiple Intelligence Test.

## Behaviourism in Modern Psychology

Behaviourism is applied to a number of areas in psychology. It is often used to address challenging behaviour in children with developmental disabilities. In particular it is used in the guise of operant conditioning introduced by

Skinner. It has been adopted in the classroom as a means of controlling disruptive pupils. Teachers are instructed to ignore misbehaviour but to reward good behaviour using positive comments and attention when the pupil sits quietly. Gradually the positive attention and comments act to shape the pupil's behaviour to the desired outcome. Behaviourist approaches have been applied in the workplace, referred to as organisational behaviour management (OBM). OBM involves, for example, praising employees when they perform safe behaviours in the workspace and treating unsafe behaviours as a learning curve. Those performing unsafe behaviours for no good reason are provided with feedback and appropriate punishment to ensure that they follow safety procedures in future. OBM embraces both reward and punishment ideology from behaviourism and is evidence-based [23]. OBM uses the ABC Model (antecedents, behaviour, consequences) which is typically used as a CBT (cognitive-behavioural therapy) technique. The ABC model [24] helps individuals to identify their negative thoughts and feelings and to reshape these in a more positive light. The connection between how thoughts and emotion influence behaviour is highlighted (Figure 1).



**Figure 1:** The ABC Model relationship showing how an environmental or bodily stimulus (A) can trigger a set way of thinking whether rational or irrational (B). These beliefs about the stimulus can provoke either a positive or negative behavioural response (C).

## Gestalt Psychology in Modern Psychology

An important part of Gestalt psychology was to account for how we organise what we sense and perceive from our surroundings into recognizable patterns by forming connections between them. Hence, the information we process is formatted in a way that makes sense and is easier to remember. For instance, it is easier to remember an intact picture than it is to remember separate components. Gestalt principles include the notion of proximity, closure, similarity and figure/ground to name a few, all of which provide a

comprehensive understanding of visual perception. Kaluza [25] has examined the role of Gestalt principles in the world of design creations today. She provides the example of how designers organise words within a text such that there are groupings of words into sentences, spaces between words and paragraphs – all as a means of helping readers to identify the main theme without having to breakdown each word individually. Another example Kaluza provides is the way in which drivers focus on specific elements of road travel such as the direction of road traffic per se at the expense of looking at every single car. There are many Gestalt principles (too many to review here) but concepts such as ‘emergence’ helps explain why we can recognise a crowd of people yet not identify individual faces or their clothing. This illustrates that our minds are tuned to organise elements and differentiate patterns. The concept of ‘multi-stability’ helps explain why different people will settle on one or another interpretation of an ambiguous figure. This demonstrates our need to establish certainty from ambiguity. In relation to web-design, the principle of proximity is important. This helps designers to organise discrete information in an orderly fashion. In so doing a legible visual hierarchy is created for the website that makes it easier for users to navigate and access information quickly. Visual perception is where Gestalt psychology excels even in today’s climate of high-technology and cognitive neuroscience.

### Interdependency of Subareas in Psychology

As we can see these five schools of thought have impacted on theory, research and methodology used in psychology today.

The legacy of having a history of different schools of thought has strengthened psychology by increasing its diversity of explanation to the common goal of understanding human thought and behaviour. This means psychology incorporates a multi-layered approach to explaining human behaviour which can err on the side of nature (biological-gene) or nurture (environmental). Interestingly, in the past psychologists tended to follow either a nature or nurture approach. This way of thinking about human development and behaviour is largely outdated, and for most contemporary psychologists there is an acceptance of a nature-nurture interaction. The question asked by many psychologists today is what form this interaction takes (see later).

Although different psychologists have methodological preferences for researching their topic, recently there has been a movement from some quarters to triangulate various methods together as a means of attaining as much information and data as possible. Examples of this include the development of fields such as social cognition and cognitive neuroscience. Different types of research methodology address different, but overlapping, questions. In effect the questions addressed, and problems set in one subarea of psychology, in some cases, overlap with other subareas. In these cases, the knowledge base gained can create a sense of unity and a common goal. A good example of this is the integration of a multi-layered approach to the treatment of certain conditions. More recently, clinical psychologists are recognising the contribution that different approaches can bring. Therapy is a good example, of how different treatment approaches can be used in caring for the individual (Table 3).

Approach	Input	Outcome
Biological	Organic treatment to reduce anxiety such as beta-blocker	Reduction of fear and the anticipation of fear to phobic stimulus
Cognitive	The illogicalness of having a fear of the phobic stimulus is explored through upfront cognitive interviewing and discussion	Realisation that the fear response to the phobic stimulus is illogical and unfounded
Behaviouralist	Gradual intimate introduction to phobic stimulus to point of comfort OR immediate introduction to stimulus	Develop a gradual reduction in fear to the phobic stimulus OR instant reduction in fear
Psychoanalysis	Exploring childhood and possible causal antecedents of phobic reaction	Awareness and understanding of development to phobic stimulus

**Table 3:** Different therapeutic levels in the treatment of phobias.

At first sight these approaches may seem to have little to say to each other. However, in order to understand the cognitive approach, we have to realise that there has to be a biological substrate for this ‘illogical’ fear. Biological psychologists have come a long way in recent years through, for example, scanning techniques to determine where this substrate is in

a physical sense (areas of the limbic system). This knowledge can then feedback into the cognitive models that have been developed to explain childhood fear. In recent years this has led to the development of neurocognitive psychology. The influence of functionalism can be seen in modern day biological psychology whereas the legacy from more than one

school of thought has sculptured cognitive psychology (e.g. Gestalt psychology and structuralism). Cognitive psychology has also forged links with behaviourism especially in the development of therapy; cognitive-behavioural therapy being one example of a successful treatment drawing upon concepts from both cognitive psychology and behaviourism. This is rather intriguing given that the origins of these two subareas within psychology derived from two opposing schools of thought – opposing each other on grounds of theory, methodology and level of objectivity. In recent years cognitive psychology has developed new ways of modelling

cognition via the development of associative areas of neuroscience, neurocognitive psychology and computer science [14].

Another example of information cross-fertilisation is in the understanding of social development studied under the subarea of developmental psychology. How do children come to know how to behave in a socially appropriate manner? Information contributing towards an understanding of social development in children is highlighted within five core subareas of psychology (Table 4).

Theories	Explanation
<b>Evolutionary psychology</b>	We have developed modules for sociability as a means of adaptation to group living from our evolutionary past
<b>Psychoanalysis</b>	Attachment between mother-infant influences future social behaviour
<b>Cognitive psychology</b>	Development of thought, memory, perception and language help the child learn how to understand and interact with others
<b>Developmental psychology</b>	The legacy of the child's biological development interacts with the parental nurturance provided including role models
<b>Social psychology</b>	Socialisation provided by the parents guides the child into behaving appropriately

**Table 4:** A selection of theories concerning social development in children.

The example in Table 4 demonstrates different theoretical approaches accounting for how children develop socially. Again, at first sight these appear to be independent of each other but on further analysis the extent of theoretical interdependency becomes apparent. In evolutionary psychology the predisposition to be sociable, a trait driven by living in small groups, relies on kin and friend recognition and bonding. This bonding is initiated through attachment behaviours such as those seen between mother and infant. Secure attachments enable individuals to form successful friendships which help shape social behaviour. Social behaviours which help to develop successful relationships are maintained within groups while inappropriate social behaviours are discouraged through parental guidance and nurturing. The developing child of course has to understand the nuances of socialisation and retain this in memory. Therefore, socialisation goes hand-in-hand with cognitive development. The fabric of all these theoretical approaches is intricately interwoven together. Furthermore, we can see the influence of the various schools of thought with functionalism playing a large part in evolutionary, cognitive, developmental and social psychology. Psychoanalytic understanding of attachment also has connections with evolutionary psychology via the works of John Bowlby [26]. He claimed that infant attachment to the caregiver (via a bond) has an adaptive quality conducive to survival.

Returning to the newborn's ability to understand its immediate world, two opposing views come to light. The first claims that babies are equipped with innate skills enabling them to give some meaning to their surroundings [27] and the second subscribing to the blank-slate approach discussed earlier. One of the main methods used to document what babies can and cannot do is observation. Observation techniques dominated early developmental psychology, but these are limited. It was not until the advent of new technology, used to measure brain activity and subtle eye-movement, that profound readings of a newborn's mind and perception of the world became more precisely understood. These technological advancements are due largely to developments within biological and neurocognitive psychology. Biological and evolutionary accounts of human development have impacted on developmental psychology and, in particular, the ontological aspects of prenatal growth. The understanding of brain development in the womb and during the early years of infancy owes much to biological psychology. It is through technology used by biological and neurocognitive psychologists that evidence refuting a blank-slate view of how newborns understand their world arose. Renee Baillargeon showed, using a habituation-looking time paradigm that babies have a well-developed understanding of the physical world which enables them to identify possible from impossible scenarios presented on a screen. Infant abilities (or competencies) extend to face recognition.



These findings combined suggest that newborns have an innate predisposition to learn and interpret their immediate surroundings. Is there a reason for this? Can this ability to learn have adaptive connotations? Despite there being some areas of information cross-fertilisation within psychology, the sharing and integration of theory, methodology and data are largely absent across the many different psychological subareas. Therefore, we ask the question is it possible to develop a unifying theoretical approach within psychology in order to understand human behaviour?

### The Rise of Evolutionary Psychology

While the term evolutionary psychology was first used by American biologist Michael Ghiselin [28], his use of the term was quite different to modern day interpretations. Most advocates today date the modern understanding of the term back to the publication of the 1992 multi-authored book *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* by North American trio Jerome Barkow, Leda Cosmides and John Tooby. Evolutionary psychologists consider that “current behaviour and internal states reflect the influence of psychological dispositions that aided survival and reproduction in the ancient ancestral past” [29]. While Barkow, et al. [30] initially concentrated largely on marrying cognitive psychology to evolutionary biology, the remit of evolutionary psychology expanded rapidly over the next three decades. Today those psychologists who apply evolutionary theory to help understand the human condition are drawn from all of the aforementioned subareas. In fact, during the last 30 years the evolutionary approach to the human sciences has had a growing impact on cognitive, social and developmental psychology in addition to individual differences, abnormal psychology, neuroscience, feminist theory and sociocultural anthropology to name but a few [31].

Since the early noughties some experts have begun to argue that evolutionary psychology can provide a unifying framework to bring together the diverse approaches described above [32-34]. Given however, that the ‘traditional’ approaches discussed above have made great strides in helping us to understand many aspects of life such as why we see sex differences (social conditioning), why some individuals develop schizophrenia (abnormalities in neurotransmitters) and why some find romantic relationships difficult to maintain (problems with childhood attachments), we might ask what can evolutionary psychology bring to the table? Such explanations are really about the causes of particular internal states and behaviour. These forms of answers are in reality about how these behaviours came about. They do not, however, tell us why we have propensities to develop these behaviours. In contrast evolutionary psychologists seek to answer why

questions concerning our behaviours and internal states through a knowledge of the challenges our Pleistocene ancestors faced. Hence today we gravitate towards responses which would have helped our ancient ancestors to survive and pass on their genes. This means that we can provide a different level of answer to the three aspects of human life outlined above. Hence, girls and boys gravitate to differing gender roles because their ancestors faced different recurrent reproductive challenges; schizophrenia is maintained in the population because some people inherit certain genes which make them susceptible to this disorder under current novel environments; and, under the varying, challenging circumstances our ancestors faced, it paid them to develop a range of potential types of personal relationships [29]. The important point here is that each of these forms of explanation stems from an understanding of Darwinian selective forces and hence provides both links between them and ultimate answers to such questions.

We believe that evolutionary psychology can provide novel ways of considering the human condition and novel ways of producing testable hypotheses. We argue that this approach has the ability to transform current academic psychology by bringing together the various subareas under the unifying umbrella of evolutionary psychology.

### Summary

It has been suggested that these different schools of thought are responsible for creating divisions in the development of psychology, and in so doing has left it a fragmented discipline. Perhaps, however, we can turn this idea on its head and suggest that each school contributed in its own way to the general understanding of the human condition. These schools of thought are still incorporated into psychology today – by way of concept, theory, methodology and application in academic, applied and therapeutic spheres of psychology. Each school of thought provides a methodology and a dogma from which current research findings in psychology have developed – the adage that we stand on the shoulders of giants applies here. Within different areas of psychology we can see the interplay between nature-nurture – with the behaviourists arguing that our behaviour can be attributed to our learning within the environment; the Gestalt psychologists highlighting the importance of mental processes that are innate; functionalists claiming that our behaviour rests on innate processes interacting with our environment; psychoanalysts attributing much of our behaviours to unconscious drives and motivations which surface to interact with our conscious mind; structuralists believing that we experience the world through sensations accompanied by feelings. Despite such interplay, psychology today lacks a unifying framework. We argue here that evolutionary psychology can become that framework for the development of a unified psychology.

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