Preparedness theory and phobias

Suffering from a phobia can be a debilitating and distressing condition. Phobias induce physiological responses and can impact upon daily routines, inhibiting life experiences and opportunities. While more people are likely to have unpleasant experiences with non-biological stimuli there is research to suggest that phobias have a biological specificity i. e. most phobias are based upon a fear of biological stimuli (Jacobs & Nadel, 1985). Science has attempted to understand two things in regards to phobias; which mechanisms activate a phobic response and how they can be treated. Initial scientific evidence has explained the origin of phobias in terms of Pavlovian classical conditioning, identifying them as conditioned human responses (Marks, 1989). Seligman, however, questioned differences between fears conditioned in the laboratory and phobias, and instead proposed a contemporary model of fear learning which he called preparedness theory. According to preparedness theory, phobias are based in the evolutionary programming of humans and they are primed to respond to fear specific stimuli which threaten survival e. g. spiders and snakes. This essay will discuss classical conditioning, preparedness theory and the biological basis of phobias as well as. In addition this essay will examine contemporary research which outlines the status of preparedness theory today.

Classical conditioning suggests that automatic reflexes, like blinking or salivation, can be conditioned to respond to any neutral stimulus (Slater, 2004). Initially, Pavlov’s research focused on digestion in dogs. While doing this he noted two things. Firstly, that the dogs would often begin to salivate prior to the presentation of food and, secondly, that this was a non-conscious behaviour. He quickly realized that salivation was no longer due to an

automatic, physiological process. Pavlov then investigated how these conditioned responses were learned. Through a series of experiments, he set out to provoke a conditioned response to a previously neutral stimulus. He selected food as the unconditioned stimulus (US), a stimulus that naturally and automatically evokes a response. The ticking sound of a metronome was chosen to be the neutral stimulus. First he exposed the dogs to the sound of the metronome, then immediately presented the food. After undertaking several trials, Pavlov recorded that the dogs began to salivate upon hearing the metronome. Therefore, the previously neutral stimulus, the metronome, had become a conditioned stimulus (CS) that then provoked the conditioned response (CR), salivation (Field, 2006). Pavlov's findings were based upon trials with animal subjects and assumed that the conditioning of fear and phobias followed a similar process in both animals and humans. Thus, neutral stimuli could be conditioned similarly in both animals and humans (McNally, 1987).

Pavlov's classical conditioning theory functioned upon the supposition that any predictor should be able to enter into an association with any outcome. This is called the equipotentiality premise. Equipotentiality implies that a phobia of anything can develop provided that it is experienced in close association with a trauma (Field, 2006). However, other studies suggest that phobia and fear is not random (Marks, 1989) and is related to the survival of the human species and evolutionary association with danger and trauma (Seligman, 1971). If Pavlov's explanation of the equipotentiality of all stimuli to become conditioned were simply that then the range of phobias would be spread arbitrarily across the spectrum of biological and non-biological

objects e. g. a phobia of chairs or flowers would be as likely to evolve as one toward snakes or spiders. Seligman (1971) explained this concept, stating that phobias can induce fear using classical conditioning methods such as the pairing of a tone with shock. However, the conditioning of a phobia is not unprepared as that explained in classical conditioning; instead humans are prepared or genetically primed to the conditioning of fear related to the survival of humankind. There are some instances of phobias related to technology such as a fear of flying however, in Seligman's view people talk themselves into these phobias and these instances are infrequent and inevitably based in human survival. Similarly, Marks (1989) supports this premise identifying that, while fear of snakes is widespread in primates, research shows that animals from the African plains do not react directly to predators, but use more subtle cues such as proximity and behavioural cues to identify danger. Research has attempted to establish three general categories of phobic fears: physical objects or events (heights, thunder), fear of other humans (social fears) and fears of animals (communicative fears) (Ohman & Mineka, 2001). These categories offer support for the hypothesis that the nature of fear is non-arbitrary and the systems which govern fear and the development of phobias are more complex than initially suggested in the classical conditioning model (Cummins & Cummins, 1999; Field, 2006). Ohman et al. as cited in McNally (1987) found that preparedness for fear changed in the life span of primates. They explained these findings by hypothesising that the relative dependency of younger monkeys upon older carers meant that they were more vulnerable to attack from predators thus preparing them for animal fears. Similarly, upon entering their ' adolescent'

phase, dominance conflicts can occur, thus ‘ preparing’ adolescents for social fear associations (McNally, 1987).

Using the evolutionary perspective, Seligman’s theory not only proposes a predisposition to learn specific associations that are important for survival, called prepared learning. He also identifies associations that are irrelevant to survival as ‘ unprepared’ and associations that impede survival as ‘ contra-prepared’. Seligman’s research has established four differences about phobias seen in the classical behavioural learning model. These differences include the ease of acquisition, high resistance to extinction, belongingness and irrationality (McNally, 1987). In the laboratory, it was found that conditioning of fear usually required between three and six trials and was extinguished readily (Seligman, 1971). Ease of acquisition contends that phobias can be developed with highly degraded input, in comparison to conditioned fear (Marks, 1989). Resistance to extinction refers to the persistent nature of a phobia despite a lack of reinforcement or removal of reinforcement. Research supports this as one of the most empirically robust components of preparedness theory. McNally (1987), however, contended that clinical data refutes the idea of resistance to extinction. He cited the work of Foa and Kozak (1986) and Williams, Turner, and Peer (1985) to demonstrate that enough therapeutic exposure eliminates both prepared and unprepared phobias (McNally, 1987). Belongingness contradicts the equipotentiality premise, identifying that some conditioned and unconditioned stimulus combinations are easier to learn than others (McNally, 1987). Phobias are believed to be non-cognitive and phobic fear is rarely inhibited by rational means, thus, when informing a phobic individual

that they are not going to be harmed by the object of their phobia; their behaviour does not change (Seligman, 1971).

A significant body of research involving Pavlovian conditioning to fear-relevant versus fear-irrelevant stimuli has been conducted by Ohman and his colleagues as cited in Cook & Mineka (1990). Typically a study involves non phobic human participants, an US (mild electric shock) and CS which are considered to be fear relevant (e. g. slides of spiders or snakes) and fear irrelevant (e. g. slides of mushrooms or flowers). Conditioning is usually indicated by the degree of difference in electrodermal activity. This research demonstrated that responses conditioned to fear relevant stimuli were acquired more rapidly than responses to fear irrelevant stimuli, they were slower to extinguish, and were resistant to extinction instructions (Cook & Mineka, 1990). Through their research, Ohman and Mineka (2001) proposed an evolved model of fear learning, identifying four factors: activation occurs in aversive contexts by fear relevant stimuli with an evolutionary basis, automaticity, encapsulation and a neurobiological mechanism. They suggest that the inability of humans to exert conscious cognitive control over their phobia, despite rational evidence of safety, is explained by encapsulation.

Empirical evidence regarding conscious and unconscious fear acquisition indicates that fear-irrelevant stimuli can only acquire fear-associations with conscious experiences whereas fear conditioning to fear-relevant stimuli can occur without awareness (non-conscious) (Esteves, Parra, Dimberg, & Ohman, 1994). Within their cognitive mechanism, Ohman and Mineka (2001) propose dual levels of learning in fear conditioning in which the amygdala is responsible for automatic emotional responses and, therefore, fear learning

in human conditioning with fear relevant stimuli. The hippocampus then controls the cognitive level of contingency learning where fear learning with fear-irrelevant stimuli occurs, although this is unemotional.

In an attempt to replicate the findings of Ohman and colleagues, Cook, Edwin Hodes & Lang (1986) researched the effects of the stimulus content upon preparedness and phobias. Just as it is believed that some stimuli are more easily conditioned due to the salience of the stimulus, Cook et al. (1987) found that the results of their experiment were potentially effected because of their use of a loud noise as the unconditioned stimulus as opposed to an electric shock which was used by Ohman et al. in their research. These findings imply that the tactile nature of the US used in experiments could be a determining factor in resistance to extinction of phobia.

Lovibond, Siddle and Bond (1993) proposed that selective sensitisation is the result of encoding to elicit fear and that the potential to elicit fear is apparent only in particular conditions e. g. pre-existing states of anxiety or arousal (the anticipation of the shock leads to the state which then ‘ prepares’ for fear related behaviour). Increased response to shock is termed ‘ sensitisation’ and the increase in response is termed ‘ selective sensitisation’. In their research, Lovibond et al. (1993) identified selective sensitisation as an alternative explanation for resistance to the extinction of fear. This phenomenon explains why “ many phobic disorders arise when the fear-relevant situation is experienced after a traumatic or stressful event, rather than before it, as required by conditioning theories” (Lovibond et al., 1993, pg 459).

Preparedness theory today continues be explored and refined. Marks (1989) suggested the concept of prepotency to preparedness, which specifies that species selectively respond to particular stimuli, a predisposition further demonstrated in preparedness, where organisms also learn certain responses to particular stimuli (Marks, 1989). For Marks, human survival has been contingent upon an ability to learn from encountered danger, providing associative explanations regarding the need for humans to respond to biological stimuli in order to survive (Davey, 1995) supports the theory of learned associations underpinning the non-arbitrary distribution of phobias, but argues that this is the result, not of preparedness, but of cognitive biases. Processing of frightening stimuli is biased in terms of an increased anticipation of aversive results from contact with the object, and this both creates and continues strong associations between the two (Davey, 1995). Neurological research is now being applied in an attempt to understand how cognitive mechanisms function in fear learning.

There is substantial evidence to support the preparedness view of fear acquisition and a premise in which most phobias are associated with objects important in nature that have the potential to impinge upon the survival of the species (Seligman, 1971). Thus, if the acquisition of phobias is species specific and has a basis in evolution, preparedness theory could also account for the high resistance to extinction which has been observed (Seligman, 1968). In the laboratory setting, resistance to extinction has also been explained to be fear relevant stimuli which have recorded greater electrodermal responses because of the enhanced threat of electric shock (Lovibond, Siddle & Bond, 1993).